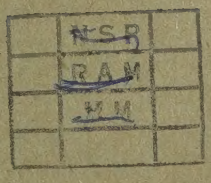
REPORT

on the working of the

DEPARTMENT OF AGRICULTURE AND FISHERIES

for the year

1969



MALTA
DEPARTMENT OF INFORMATION
1971

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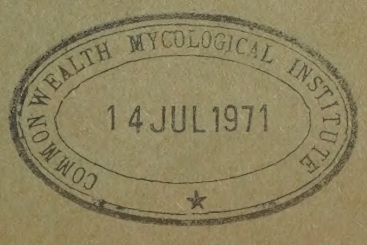

DEPARTMENT OF AGRICULTURE
AND FISHERIES

14, Scots Street,
Valletta.

31st December, 1970

Sir,

I have the honour to transmit to you herewith my report on the working of the Department of Agriculture and Fisheries during 1969.

I have the honour to be,

Sir,

Your obedient servant,

(A.S. FARRUGIA)
Director of Agriculture
and Fisheries

The Honourable,
Minister of Trade,
Industry and Agriculture

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I INTRODUCTION

The Maltese Islands

The Maltese Archipelago, consisting of the Islands of Malta, Gozo, Comino, Cominotto and Filfola, is situated in the middle of the Mediterranean Sea.

At the extreme points the Maltese Islands fall within the following positions:-

North	-	36° 57' N. Latitude
South	-	35° 48' N. Latitude
East	-	14° 35' E. Longitude
West	-	14° 11' E. Longitude

The total area is 121.85 square miles of which Malta occupies 94.876 square miles and Gozo 25.899 square miles. Malta extends for a maximum distance of about 17 miles from South East to North West with the greatest width of about 9 miles. The corresponding figures for Gozo are 9 and 4½ miles.

The length of the shoreline round Malta is 85 miles and that round Gozo is 26½ miles. The coastline of Malta is well indented, particularly on the east, north-east and south-east sides.

The climate of the Maltese Islands is of the Mediterranean type. The Islands enjoy moist, mild winters and dry hot summers.

The population in 1968 was 319,254.

The Farming Community

In 1968 there were 5,921 wholetime and 8,410 part-time farmers as against 6,232 and 8,452 respectively in 1967. Wholetime farmers amounted to 6.2 per cent of the gainfully occupied population.

The farm population (whole-time and part-time farmers and their dependants and relatives, who live in the same household although they may not earn their income from the agricultural sector) was 47,648 in 1968. Out of this total 11,023 earned income from other sectors of the economy, but many of them were registered as part-time farmers.

Agricultural Land

The area of agricultural land reported in 1968 was 141,297 tmiem.

Holdings were as follows:

	Holdings	Area
Full ownership	1,011	6,085 tmiem
Mixed ownership	1,890	41,685 "
Rented	7,755	93,527 "

6,085 of these holdings were under 10 tmiem in size. Only 350 holdings were 50 tmiem or over in size.

Glasshouses

In Malta, in 1969 there were 210 glasshouses (covering 12 acres) and 141 polythene houses (covering 7.4 acres) besides the covered ground (glass and polythene) at the Government Experimental Farm (0.5 acres) and at two large private holdings (20.5 acres).

Agricultural Production

The yearly crop production is estimated as follows:

Cereals, legumes, forages and vetches	- 28,000 tons
Vegetables	- 53,000 tons
Fruit	- 8,000 tons

It is estimated that about 7 million dozen eggs and about 6 million gallons of milk are produced annually.

Total agricultural production in 1968 was £8,800,000 as against £7,800,000 in 1967. The share of Agriculture in Gross Domestic Product was 7% in 1967 and 7.2% in 1968.

Livestock

The livestock population consisted in 1968 of about 10,000 heads of cattle, 9,000 sheep, 20,000 goats, 23,000 pigs, 730,000 poultry birds and rabbits and 4,500 horses, mules and donkeys.

Fisheries

In 1969 local landings of fresh fish amounted to 1,138 tons which sold at a first sale value of £320,260.

The number of fishermen in 1969 was about 590.

Earnings of Farmers and Fishermen

The average earnings of farmers from 1966 to 1968 were as follows:

1966	-	£396
1967	-	£441
1968	-	£529

The average earnings of fishermen from 1966 to 1968 were as follows:

1966	-	£291
1967	-	£281
1968	-	£318

II ORGANIZATION, ADMINISTRATION AND FINANCE

Functions

The main functions of the Department are:

(a) The increase and improvement of land produce and live-stock by (i) financial aid (ii) advice and technical assistance, and (iii) experiments.

(b) The increase of fish supplies by (i) financial aid (ii) advice and technical assistance and (iii) experiments.

(c) The provision of marketing facilities.

(d) Public Gardens

(e) Afforestation

(f) The control and eradication of diseases in plants and animals

(g) The control of the slaughter of animals for meat

(h) The control of wine production

(i) The control of the use of soil and water (for irriga-tion purposes)

(j) Assisting and supervising Co-operative Societies

Organization

The Department is divided into the following seven Divisions:

1. Administration and Finance
2. Veterinary Services
3. Animal Production
4. Plant Production and Protection
5. Fisheries
6. Marketing
7. Co-operatives

Staff

The Staff of the Department on 31st December, 1969 was 608.

Another Principal Technical Officer was appointed during the year. He took charge of the Animal Production Division.

The duties of Registrar of Co-operatives Societies, previously done by the Director, were taken over by an Administrative Officer.

Staff Training

Mr. Francis Sammut, Agricultural Assistant studied "Outdoor Vegetable Production" from July, 1968 to January, 1969 in Israel (F.A.O. Scholarship).

Mr. Paul De-Battista, Agricultural Assistant, studied "Fruit Culture and Experimental Layout" from April to October, 1969, in Israel (F.A.O. Scholarship).

Mr. Leonard Ellul, Fitter I, trained in boiler maintenance from January to March, 1969 at Guernsey, Channel Islands (F.A.O. Scholarship).

Mr. John Camilleri, Stoker II, trained in boiler maintenance from January to March, 1969 at Guernsey, Channel Islands (F.A.O. Scholarship)

Mr. Carmelo E. Spiteri, Higher Executive Officer, trained in Agricultural Development and Economic Planning at the Ministry of Agriculture, Paris, from December, 1968 to July, 1969 (French Government Scholarship).

Mr. Caesar Scerri, Executive Officer, studied Administration in Agriculture at the Ministry of Agriculture in Rome and Florence from September to October, 1969 (Italian Government Scholarship).

Mr. Carmelo Libreri, D.P.A., B.A. (Econ) was awarded a fellowship by the Economic Commission for Europe to study export promotion. He left Malta for Geneva in September, 1969.

The Following Officers continued their studies abroad during 1969:

(a) Messrs Joseph Borg, Carmelo Seracino Inglott, Victor Farrugia, Joseph Cremona and Francis Saliba in U.K. to obtain the National Diploma in Horticulture.

(b) Mr. David D'Andria in U.K. to obtain a degree (B.Sc) in Zoology.

(c) Mr. George Carbone in U.K. to obtain a degree (B.Sc) in Plant Pathology.

(d) Mr. Carmelo Vella in U.K. to become Veterinary Surgeon.

Mr. Alfred Conti Borda who was on a course in Agriculture in U.K. returned to Malta in July, 1969.

Conferences Abroad in 1969

Mr. Louis Cilia, Executive Officer, attended the European Conservation Committee meeting held at Strasbourg, France, from the 16th to 28th June, 1969.

Mr. Henry Galea Souchet, Viticulturist and Enologist, attended the F.A.O. Study Group on Wine and Vine Products held at Bled, Yugoslavia, from the 1st to 6th September, 1969.

Baron K. Vella Haber, Information Officer, attended the Green Week in Berlin, from 31st January to 12th February, 1969.

Mr. Victor Rossignaud, Agricultural Marketing Officer, attended a Technical Conference on Marketing and Export of Fruit and Vegetables in the Mediterranean Area, in Rome, from 6th to the 11th October, 1969.

The Director of Agriculture and Fisheries and the two Principal Technical Officers attended the 15th Session, F.A.O. Biennial Conference in Rome from 30th October to 21st November, 1969.

Mr. Joseph Galea, Technical Assistant in the Fisheries Division attended the General Fisheries Council of the Mediterranean held in Rome on the 4th to 13th December, 1969.

Foreign Advisers and Assistants

The following foreign advisers and assistants were in Malta during the whole of the year:

(a) U.N.D.P./FAO Horticultural and Demonstration Project

Mr. Giovanni B. Mazzocchi	- Project Manager
Mr. Guy Spoiden	- Greenhouse Management Technician
Mr. E. Collingwood	- Plant Protection Specialist
Mr. R. Siddell	- Greenhouse Production Specialist
Mr. Eric Le Tissier	- Greenhouse Management Technician

(b) Veterinary Surgeons seconded by the Italian Government

Dr. Clodoveo Capitoli

Dr. Mario Bartolucci

(c) Other Experts and Advisers

Mr. Moshe Allon	- Afforestation and Tree Planting - Israel
Dr. Lelio Durante	- Agronomist - Italy
Mr. David A. Lintorn	- Fisheries - U.K.
Dr. Gracco Denardo	- Sea Food Cultivation - Italy
Mr. Julius Obermaier	- Fertilisers - Western Germany

(d) British Corps of Volunteers

Miss June Wilkinson	-	Plant Protection
Mr. Robert Hunt	-	Soil Analysis

The following foreign advisers were in Malta in January, 1969 but left during the year:

U.N.D.P./FAO Horticultural and Demonstration Project

Mr. Rene Martinez	-	Vegetables, Flower and Seed Production

Other Advisers

Mr. Thomas Ryal	-	Chief Agricultural Advisory Officer

The following advisers arrived in 1969 and were still here at the end of the year:

Mr. Klaus Arp	Fertilisers	Western Germany
Dr. D. Link	Marketing	Western Germany
Mr. K. Koster	Dairying	Holland
Dr. C. Cervi	Fruiticulture	Italy

Legislation

The following laws and subsidiary legislation were enacted in 1969.

(a) The Wine Act, 1969

(b) The Agricultural Returns (Amendment) Act, 1969

(c) The Onions (Export) Regulations (Amendment) Rules, 1969

(d) The Onions (Export) Regulations (Amendment) (No 2) Rules, 1969

(e) The Agriculture (Plant Protection) Act (Fourth Schedule) (Amendment) Regulations, 1969

(f) The Agriculture (Plant Protection) Act (Second Schedule) (Amendment) Regulations, 1969

(g) The Fish Marketing (Amendment) Regulations, 1969

(h) The Agriculture (Plant Protection) Act (Second Schedule) (Substitution) Regulations, 1969

(i) The Types of Wines Order, 1969

(j) The Types of Wines (Amendment) Order, 1969.

Expenditure

The actual expenditure in the financial year 1968/69 and 1969/70 was as follows:

Ordinary Expenditure:	1968/69	1969/70
Personal Emoluments	150,153	172,705
Other Charges	253,643	287,976
Special Expenditure	13,510	20,244
	417,306	480,925
Capital Expenditure	325,143	260,769
Total	£742,449	£741,694

Revenue

The actual revenue collected was £126,534 in 1968/69 and £120,385 in 1969/70.

Below the Line Accounts

The Department received £1,520,154 and paid £1,333,433 in 1969/70 in connexion with Below the Line Accounts (Pitkali, Sorghum Scheme, etc.)

III FINANCIAL AID

Farmers, fishermen and livestock breeders are given financial aid in order to enable them to increase their production.

The assistance is regulated by the Agriculture and Fishing Industries (Financial Assistance) Act, 1956 and by the relative Arrangements for the provision of Financial Assistance (Govt. Notice No19 of 1959) as amended.

The assistance granted to farmers is in the form of 60% loan at 6% interest and 40% grant.

In 1969 the following assistance was given to farmers:-

Purpose	No of beneficiaries	Loans £	Grants £	Total £
Rotary cultivators	45	9,899	6,595	16,494
Overhead irrigation equipment	7	1,285	857	2,142
Glasshouses	20	17,610	11,735	29,345
Heaters for glasshouses	1	270	180	450
Repairs to farmhouses	3	335	223	558
Construction of and repairs to water reservoirs.	4	1,320	880	2,200
	80	30,719	20,470	51,189

The Malta Milk Producers Co-operative Society Limited, was given a loan of £23,098 and a grant of £15,399 to erect and equip a Provender Mill for compound manufacture.

In 1969, the following financial aid was given to fishermen in the form of Loans at 1% interest and grants.

Purpose	No of beneficiaries	Loans £	Grants £	Total £
Fishing equipment and repairs	2	1,290	517	1,807
Replacement of engines	2	-	832	832
Modification to craft and construction of smaller boats	6	6,003	2,795	8,798
	10	7,293	4,144	11,437

The majority of the repayments of loans and interest thereon were made by fishermen by the deduction of 10% or 5% from the sales of the fish catches.

Subsidies

In 1969 wheat offals sold to livestock breeders were subsidised by £110,821. Government has been subsidising prices of wheat offals since the last war.

The following subsidies were given to the associations indicated:-

Malta Horticultural Society	£120
Agrarian Society	£750
Malta Rabbit Club	£200
Gozo Agricultural and Industrial Society	£350
Malta Horse Show	£100
R.S.P.C.A. (Malta Branch)	£220

Co-operatives were given £7,872 in 1969, being contribution towards marketing expenses. The subsidy is calculated at the rate of -/10½d per £1 of fruit and vegetables sold.

Fishermen are refunded the duty payable on diesel oil, petrol and kerosene purchased for their fishing vessels. The sum refunded to fishermen in 1969 was £2,634.

A premium is given to approved livestock breeders for keeping pedigree animals for breeding purposes. £357 were paid to them in 1969.

Sorghum Scheme

In accordance with the agreement between the Government of Malta and the F.A.O. World Food Programme, sorghum supplied by the latter was sold to pig breeders at a subsidised price of about 25% below the market price.

Proceeds from the sale of the sorghum are used for the development and modernisation of the Pig Industry.

In 1969, £17,523 were given to 15 beneficiaries (in loans and grants) to enable them to construct model piggeries.

German Fertilizers Scheme

Under the German Fertilizers Scheme 200 metric tons of compound fertilizer were shipped to Malta in August, 1969. The shipment, consisting of 4,000 bags, was sold to farmers at a subsidised price of 25% below market price.

Indirect Financial Aid

Besides direct financial aid the department gives indirect financial assistance by way of services (spraying, steam-sterilization, supply of water, etc) below cost.

IV ADVICE AND TECHNICAL ASSISTANCE

During the year under review the Department continued to give advice and technical assistance to farmers and breeders through its various Sections.

Advice

The main method used to impart knowledge and guide farmers was the day to day visits by Officers of the Extension Service Section to farmers. In this way, these officers gained the confidence of the farmers and their families.

The Extension Service supplemented these personal visits by giving lectures to young farmers' sons attending the full-time Horticulture and Agriculture course at the Agriculture School run by the Department, by holding farmers' meetings in various villages and at the Government Farm and by supporting the two Agricultural Clubs at Luqa and Mgarr.

A fortnightly publication "L-Agrikoltura" was issued by the Department and distributed free of charge, while a weekly half-hour programme was broadcast over the local relay system (Rediffusion). The Information Section answered hundreds of verbal and written questions on agriculture during the year.

Laboratory Service

The Land and Water Use Section analysed 635 samples of soil, water and feedingstuffs. This service was freely given to all those who sought it.

Water distribution

During 1969 over 2,000,000 gallons of water were distributed to farmers and part-time farmers by bowser while over 8½ million gallons were distributed to farmers living in Luqa, Attard, Balzan, Mriehel and Sta Venera via a network of underground stone channels and pipes.

Those receiving channel water were charged 5d per 1,000 gallons in autumn and winter and 8d per 1,000 gallons in spring and summer. Those receiving water by bowser were charged 5/- per bowser if they were farmers and 10/- per bowser if they were part-time farmers.

Plant Protection

In 1969 Officers of the Plant Protection Section and the F.A.O. Plant Pathologist carried out 541 visits to growers in connexion with plant pests and diseases.

Moreover, 215 samples were treated at the Laboratory of the Plant Protection Section. These included tomatoes, melons, carnations, courgettes, cucumbers, marrow and onionseed, strawberries, french beans, gladioli, citrus, mulberry, grapes, potatoes, chrysanthemum, apricots and peaches. A total of 57 water and soil samples were examined while over 37 germination tests were carried out.

Glasshouses

New glasshouse growers were introduced to the art of sowing, pricking off and planting of tomato seedlings. In many instances these operations were done for them by the Officers of the Horticulture Section with the hope that later on the new growers would be able to go it alone. A similar routine was exercised in the setting up, layout and training of the crop as the season progressed.

Various lectures were given and demonstrations were held at the Government Experimental Farm by the Horticulture Section in order to show growers the most modern method of production under glass.

Other Services

The following services were provided also by the various Sections of the Department:

Spraying of glasshouses and trees
Fumigation
Steam-sterilization
Pruning/grafting of trees
Pruning/grafting of vines
Artificial insemination
Stud Service
Free seeds

V EXPERIMENTS

LAND AND WATER USE SECTION

1. Fertilizer Project

In 1968, the Government of Malta and the Federal Republic of Germany entered into a bilateral agreement whereby the German authorities were to supply fertilizer and to provide an expert, while the Maltese Government was to provide all local facilities for the running of this project. In May, the German Fertilizer Expert Mr. J. F. Obermaier was joined by an assistant, Mr. Klaus Arp and as a result the Fertilizer programme expanded its activities during 1969.

Both straight and compound fertilizers were used in experiments and field demonstrations carried out on farmers' fields all over Malta and Gozo. Farmers tended to co-operate and showed a keen interest in the work and the result achieved.

Although the 1968/69 season was a dry one, the crops responded reasonably well to fertilizers applied. Results on wheat and barley are given in the following table:

Fertilizer	Wheat	Barley
Control	100%	100%
NPK 40/40/40	121%	109%
NPK 60/80/80	139%	138%

The beneficial fertilizer action was also apparent in straw production which increased by 58%.

Compound fertilizer on onions increased production by 35%.

A trial with refuse compost and compound fertilizer was carried out on tomatoes. The refuse compost produced increases in yields by apparently improving the water holding capacity and the biological activity of micro-organisms.

2. Research on the Use of Local Seaweed (Alka)

The two types of marine plants occurring in much larger quantities than any other around the coasts of Malta are Posidonia oceanica or zostera - a flowering plant with strap-shaped leaves and a fibre-covered rhizome - and cystoseira species-brown, fibrous bushy seaweeds which cling to the rocks. Of these the former occurs in much larger quantities and is that which gives rise to the large quantity of drift weed thrown up on many beaches and termed "alka".

In October, 1968 some analyses were initiated on zostera and specimens of cystoseira species to assess their possible utility in animal rations. Owing to the pressure of other work, however, it was not possible to carry out a comprehensive analysis but sume important properties were investigated.

Samples of "alka" were collected from the Mellieha Bay and St. Paul's Bay beaches and mixed, and the cystoseira sample was derived from Armier Bay and the Sliema front. Half of the samples of both zostera and cystoseira was washed 3 times at the approximate rate of 10g of plant/250 ml. of water of conductivity 2,700 mhos/cm and the unwashed and washed samples, now four in all, were dried rapidly in a current of air, first at 60 degrees Centigrade and finally at 100 degrees Centigrade.

The first series of analyses undertaken was the determination of crude fat, crude fibre and crude protein on the washed samples, the results on the following table being the mean of the two determinations:

Value of constituents

	Zostera		Cystoseira	
	Analytical Sample	Dry wt. Basis	Analytical Sample	Dry wt. Basis
Crude Fat	1.25%	1.34%	0.23%	0.25%
Crude Fibre	26. 5%	28. 6%	8.5%	9.2%
Crude Protein	3. 7%	4.0%	5.1%	5.5%

Although the cystoseira contained a higher percentage of crude proteir than zostera, since the latter occurs much more plentifully and more readily available, - it has been stated that the East Coast of Malta and the Comino Channel have large supplies and large amounts are cast up all around the shores of Malta during rough weather - it was decided to continue investigations on this type only.

It was felt that, provided all other properties of zostera were suitable, owing to its high crude fibre content which is comparable to that of sulla hay, zostera might replace some sulla in dairy cow rations. Properties that could be deleterious were:

(1) The presence of mineral oil which is occasionally washed up on Maltese beaches. This could be fairly easily avoided by observant collection of the drift.

(2) High sodium chloride content. The chloride content of the unwashed sample was determined. This figure can be used to estimate the sodium chloride content but the result will not be exact owing to the fact that some of the chloride ions will be present as constituents of salts other than sodium chloride. Bearing this in mind the results are hereunder:-

Value of Chloride and Sodium Chloride in unwashed samples

	Unwashed Zostera Drift	
	Analytical sample	Dry wt. basis
% Chloride (mean of 4 determinations)	13.0	13.7
"Equivalent Sodium Chloride %	21.4	22.6

It was assumed that most of this sodium chloride would be incrusted on the surface of the plant. The chloride content of the washed weed was determined to obtain an idea of the amount of sodium chloride which could be easily washed off:

Value of Chloride and Sodium Chloride in washed samples

	Washed Zostera Drift	
	Analytical Sample	Dry wt. basis
% Chloride (mean of 4 determinations)	1.23	1.32
Equivalent Sodium Chloride %	2.02	2.18

The sodium ion content of the washed weed was also determined and this will produce an "equivalent sodium chloride" figure which will also be in error from the true sodium chloride owing to the fact that some of the Sodium will not be present as sodium chloride. One of this Sodium content is multiplied by the ratio Cl^{o} in unwashed alka over Cl^{o} in washed alka, the approximate Na^{o} content of the unwashed alka will be contained:

Value of Sodium and Sodium Chloride

	Washed Zostera Drift	
	Analytical Sample	Dry wt. basis
% Na (mean of 4 determinations)	0.92	0.99
"Equivalent Na Cl" %	2.34	2.52

(3) High iodine content. The first determinations of iodine were based on a tentative method and produced a result of 2.1% Iodine on dry weight basis for the unwashed alka.

The remarks of Professor Iwena of Holland after his visit to Malta tended to throw doubt on the feasibility of using alka as a source of "fibre" since its incorporation into an animal ration at the rate envisaged would probably lead to dangerous levels of iodine. The Agricultural Council of Great Britain advise not to exceed 0.8mg I/kg of dry matter of food but it seems that the actual upper limit depends on the nature of the diet. It has been stated that high levels of calcium will reduce intestinal absorption of iodine. A diet rich in plants of the Brassica species is known to increase the iodine requiremtents of cattle for the prevention of goiter. Hypothyroidism has been associated with the feeling of rape seed, rape seed oil, linseed meal and soyabean by-products so the level of these in the diet will affect the iodine tolerance. The feeding of thiocyanata has a depressing effect on Iodine uptake by the thyroid and hence iodine tolerance; throuracil type compounds also interfere with thyroid activity and may alter requirements.

Professor Iwena stated that in some countries a small quantity of marine plants are used on account of their Iodine content. It was decided to assess the iodine in zostera accurately and to determine the content in some cattle rations and in the average drinking water, in order to calculate the maximum quantity of zostera which could be incorporated in a ration. The Iodine in the unwashed drift was determined by method I of the A.O.A.C. and was as in the following table:

Value of Iodine

	Unwashed Zostera Drift	
	Analytical sample	Dry wt. basis
Iodine % (mean of 2 determinations)	0.14	0.15

This method was not suitable for estimating the very small amount of Iodine in the cattle rations or in the drinking water.

If we assume, however, that they are negligible and make up a ration to contain 0.4 mg. I/kg. dry matter using alka (which should allow a fairlysafe margin of error for the assumption of neglibility) then feeding trials might be initiated incorporating approximately 1 lb of air dried ground alka in every 3,500 lbs of

ration. The difficulty might be to grind the alka fine enough in order to ensure uniform mixing with the rest of the fodder. Measurements might be made in milk yield and quality resulting from cows fed this ration and compared with that from cows not fed the alka.

In the experiments performed in the laboratory, the analytical samples contained 5.4% moisture and 7.2% moisture for the unwashed and washed specimens respectively. An air-dry sample contained only 3.1% moisture (less than both of the above figures). Hence an air-dry ground sample which might be in a ration would be approximate to the analytical sample used in the laboratory, and the results for the analytical sample should be those used in assessing the suitability of alka in an animal ration.

The % moisture in the unwashed sample as collected was 64.5. From this figure the properties investigated of the alka as collected can be calculated.

3. Hydroponics

A small glasshouse measuring twelve feet by twenty-five had been converted to hydroponics culture during the previous year. Tomatoes were planted in October and the yields were comparable with ordinary glasshouse production.

During the year, analysis were made on the nutrient solutions several times in an effort to try to study nutrient uptake under local conditions. The result and data are being analysed.

HORTICULTURE SECTION

1. Tomato Varieties (Trial 1. 1968/69)

This trial was carried out in the trough house, No.9. Varieties used were the ones that had previously shown most promise, plus one Dutch hybrid, Eurocross B.B. which is very widely grown elsewhere.

The varieties were as follows:

Fountain Cross (Control)

Kingley Cross
Selsey Cross) the leading commercial hybrids from G.C.R.I.

Eurocross B.B.

These four varieties were each replicated 4 times, twice in each section of the greenhouse each plot being a large trough holding 48 plants. In addition the following 4 varieties were planted in the small troughs along the greenhouse sides, each variety being represented once in each section, 24 plants per plot.

Moneymaker
Kingley Cross
Eurocross B.B.
G.C.R. 88

By including Kingley Cross and Eurocross B.B. in both lists it was hoped to get a better measure of their performance. The troughs were steamed and thoroughly leached; seed was sown on 23rd September and the house planted on 7th October. A small free standing air heater was installed and the glass partition in the house removed. The heating could not be uniform and was inadequate, but it was hoped that setting in winter would be improved.

As usual the plants grew freely and well at fitst, the results of leaching with fairlygood water, but soon the effects of the salt in the irrigation water began to show and from then on growth was slow and hard, though remaining healthy. Feeding was based on findings in the previous season but was limited by the necessity to avoid building up salt levels any more than could be helped.

Picking began on 15th February and continued until 12th June, 25 pickings in all. Each picking was graded for size but not for quality, except that unsaleable fruit was discarded. Yields were very low, less than half what can be expected with good water.

The following table gives the yields of each variety in each grade, for the plants in the large troughs:-

Table 1 - Yield by Grade
in rotoli and ounces per 172 plants

VARIETY	B.	C.	D.	E.	F.	Approx. TONS/ACRE
Eurocross B.B.	4.6	39.17	168.5	195.18	48.20	26
Selsey X	.26	17.19	139.29	196.19	56.11	24
Fountain X	5.17	58.18	131.0	116.0	33.22	20
Kingley X	.24	13.0	90.29	170.1	59.20	20

The grades used are the standard international grades now in use, grade B being the largest fruit and F the smallest. Grades C, D and E are the ones most acceptable on the U.K. Market; it is usually necessary to have fairly equal quantities in C and E.

As will be seen from the above table, all except Fountain Cross had the largest amount in E, and appreciable quantities in F, i.e. the fruit was too small. This was probably due to the saline water inhibiting fruit swelling. Under the same conditions however Fountain Cross produced fruit of acceptable size, and as in all other trials on the farm it was of outstanding quality as regards shape and firmness. The next best for quality was Selsey X; Kingley X was very small and was of poor shape; Eurocross B.B. while giving more fruit of acceptable size than Kingley X or Selsey X was badly misshapen and often very soft.

Regarding total yield, Eurocross B.B. gave the heaviest crop, followed by Selsey X; these results were fairly consistent on all plots. There was little difference between Kingley X and Fountain Cross, which is interesting as Kingley X was expected to outyield Fountain Cross by a considerable amount.

Eurocross B.B. gave the heaviest early yields, followed by Selsey X and Kingley X in that order, with Fountain Cross much later maturing, as in all other trials.

The results in the small troughs were as follows:-

Table 2 - Yields by Grade
in rotoli and ounces per 48 plants

VARIETY	B.	C.	D.	E.	F.	Approx. TONS/ACRES
Eurocross B.B.	2.16	17. 7	53. 7	39.26	10.24	29
Moneymaker	1.24	13.12	44.28	38.12	13.10	26
Kingley X	. 8	6.12	39.17	47.27	14. 9	25
G.C.R. 88	1. 9	12. 6	33. 9	37.20	12.28	23

As expected the yields are slightly nigher than in the larger troughs, due to the extra light along the sides of the house. Taking the two hybrids in both lists, Eurocross B.B. and Kingley X, the yield and grading pattern is much the same. The results for Moneymaker are very suspect; it was the highest yielder in one half of the house and the lowest in the other; possibly the high yield was due to a trough being flooded during a rainstorm. Its grading was similar to the Eurocross B.B.. though the fruit tended to be of better shape.G.C.R.88 is a weak-growing variety, not suited to the conditions of the trial; nevertheless it was not far behind the others and produced firmer fruit.

It would be unwise to draw firm conclusions from a trial with such depressed yields. Nevertheless taken in conjunction with other trials, one could draw the following indications:-

1. Fountain Cross remains by far the best quality variety, and in a long picking season such as this its yield capacity is comparable with other varieties.

2. Selsey X shows promise, producing fruit of reasonably good quality and with a promise of high yields. Under better conditions it could be that fruit size would be better.

3. Kingley X, a highly regarded hybrid elsewhere performed badly in this trial and does not appear to be nearly as good as Selsey X.

4. Eurocross B.B. is the heaviest cropper and earliest variety, but the fruit is not of export quality. It should only be grown for the domestic market, and for this it is likely to be the best paying variety.

5. The trial gave no new information on the performance of Moneymaker, but this variety should not be grown for export and is likely to be superseded by Eurocross B.B. for the domestic market.

6. G.C.R. 88 may be worth further trials under good soil and water conditions; it is not suitable for culture under less than optimum conditions.

2. <u>Tomato Feeding Observation Plots (Trial No. 2)</u>

This was a follow up to trial 5 1967/68, to see whether the same treatments in two successive years would have a cumulative effect.

The same house No. 10, North section was steamed, taking care not to mix the soil from the various plots, and then soaked.

Plants of Fountain Cross, sown 12th August, were set out as in 1967 on 12th September. No base fertilizers were given, but the feeding treatments began on 5th November and continued at fortnightly intervals until 5th May. The treatments were as detailed in the previous trial, except that the farmyard manure was applied only once and the borax treatment omitted (giving a 2nd control plot with no fertilizer). Fertilizers were applied to the same plots as before, so for example, plot No. 1 had nothing but sulphate of ammonia for 2 seasons.

As in the previous year growth was initially strong and soft, with some stem necorsis and very poor setting, Later plants came into balance and produced some good quality fruit. Again it was impossible to tell from the appearance of the plants or fruit that there was any difference in treatments. Picking began on 23rd December and continued until 16th June. Yields were very similar to those in the variety trial in troughs (Trial No. 1 1968/69) i.e. very low. Final results were as follows:

Yields by Grade

in rotoli and ounces per 48 plants

TREATMENT	B.	C.	D.	E.	F.	Approx. TONS/ACRE
1 lb. S. AMM	3.13	17.16	50. 9	28. 4	7. 7	25
1 lb. S. POT	6. 9	20.26	45. 8	24. 0	6.20	24
1 lb. SUPER	5. 9	22.13	50. 6	27.21	8. 9	27
1 lb. O. BLOOD	4.11	19.15	37.22	24.15	9. 3	22
2 lb. Fisons 2	2. 0	11.23	49.26	33.06	9.14	25
2 lb. J.1 = Base	1.17	15.11	53.15	33.11	10.12	27
2lb. FISONS 1	2.15	18.14	52.29	39.11	11.13	29
1" F.Y.N.	2.23	17.29	52.11	35. 7	10. 9	28
CONTROL-NIL	32.16	39.15	38.20	22.15	12.22	34
" "	13. 4	33.3	30. 4	17.17	12.13	25

No significance can be attached to final yields as there was no replication; indeed as will be seen from the figures one control plot produced the highest yield while the other was among the lowest. The only difference between treatments which are apparent lie in the grading figures; both control plots, whether high or low yielding, produced a much higher proportion of large fruit than the rest. This could be partly or wholly due to the control plots being

along the glasshouse sides; the same tendency was shown in the variety trial, though not to such a great extent. It may also have been due in part to less salts in the soil. What the figures do show is that there is no enormous difference between any of the treatments and no recognisable pattern of the effects of any fertilizers. Thus they bear out the results of observation.

It is now clear that in well-prepared soil, where plants are growing in the glasshouse floor, with saline irrigation water the effects of any type of fertilizer at normal rates are negligible. It is, therefore, no use thinking that a variation in feeding programme will counteract the effect of salt in the water; it is better to save the cost of the fertilizer.

3. Modified Trough Culture of Tomatoes - (Trial No. 3 1968/69)

This was a continuation of trial No.6 1967/68, but it was hoped that water quality would be better. For this season the aim was to see whether good results could be obtained without replacing the substrate as was done the previous year.

The old pots were removed, the substrate was loosened, flash steamed under polythene sheets and leached as much as possible. Fresh pots were filled with a 50/50 peat/soil mix, using new steamed soil. Plants were were sown on August 12th and potted on 26th September.

Again as in the previous season plants grew well initially and later became hard and thin, but it appeared that the peat was less affected than the soil, and the 4" layer less than the 2" layer. Picking began on 20th December and continued until 12th June. Various modifications of watering and feeding were made to try to encourage better growth. Heavy leaching produced immediate fertilizer deficiency symptoms, but on resumption of feeding growth was no better than before. For some time bowser water of salinity lower than that of tap water (C.F. 10 against around 30) was available. When this was used growth improved slightly, and warmer weather in the spring appeared to encourage growth. However, generally growth was poor and yields were low, very similar to yields in the other tomato trials under different systems of culture.

Yields were as follows:-

Yields by Grade

in rotoli and ounces per 66 plants

TREATMENT	B.	C.	D.	E.	F.	Approx. TONS/ACRE
4" Soil/Peat	11. 1	47.19	56.20	39.24	12.24	30
4" Peat	16. 5	51.28	63.12	44.25	12. 7	33
2" Soil/Peat	7.20	39.12	53. 6	44. 9	13. 7	28
2" Peat	7.24	46.15	59. 9	40. 2	11.13	29

While these results are not scientifically valid as there were no replications, they are interesting in that they agree with observations made in two successive seasons as follows:-

1. There was little difference between treatments.
2. Peat tended to give better growth than a soil/peat mix.
3. 4" was slightly better than 2".

On examining the grading figures it would appear that the effect of the deeper layer was to increase fruit size, which ties up with indications in other trials that salinity produces small fruit.

One encouraging feature is that in spite of the very severe hardening effect on the plants, more so than in Guernsey troughs and far more extreme than with plants in the glasshouse soil, yields were on the whole slightly better.

These must be the same as those for the previous season with the modification that it now appears that although plants are more obviously affected by saline water grown by this system than when grown by conventional methods, the yields are not necessary similarly reduced.

There appears to be no disadvantage in using the same substrate for 2 years as long as it can be steamed and well-leached.

For this season the system was put into practice on a commercial holding where good water was available, with excellent results.

4. Tomato Training Methods - (Trial No.4 1968/69)

It was intended in the near future to erect polythene houses and tunnels on the Government Farm, some of them with very light structural members. Normally, in glasshouses tomatoes are trained up strings fastened to wires which in turn are fastened to the glasshouse superstructure. Thus the weight of crop is supported by the glasshouse structure. It was considered that a cheap polythene house would not be strong enough to support a heavy tomato crop; also with some forms of construction there are no convenient rafters etc. to fasten the wires to, and in any case wiring a house is a tedious operation.

Also, tomato training is a labour-consuming job; it requires considerable skill to do it efficiently, and all conventional methods are subject to disadvantages. The most commonly adopted method is arch

training, where plants are trained up strings to the wire, then in an arch over the pathway, and down the other side. Disadvantages are the difficulty of training over the arch, exposure of fruit to sunshine on top of the arch causing over heating and loss of quality, and shading of the growing point on the downward run with a loss of photosynthetic activity and reduction of crop.

The layering method has been introduced into Malta with some success; in this system the plants are trained up strings to the wire as before; then the string is unfastened, lengthened and refastened further along the wire so that the plant stem runs horizontally for a while and then is trained up the string again as before. This operation is repeated each time the growing point reaches the wire. This does away with arching, keeps the growing point always in full light, and does not expose fruit to overheating. Its disadvantages are that it also requires a fair measure of skill, and that the ripe fruit is always near the ground, which increases the chance of it being soiled by splashing with water or sagging on to the soil, and picking always involves bending down which is tiring to the operator and slows down the work.

For these reasons it was decided to set up a trial using training methods which did not require wires, and which would keep most of the work of training, trimming and picking at a convenient working height.

A light timber framework of 1" x 1" or 2"x1" timber was erected over each double row consisting of 2 rows of posts, 6 feet apart in the row and 3 between the rows, with rails nailed along the top of the posts along the rows, across the ends and across the bed at the position of each post. On top of this 3 wires were strung along the bed 9 inches apart, fastened to the end cross ties, and strings were fastened across the framework at 1 foot intervals as for carnations stringing. Three structures were made 3 feet 9 inches high and another three, 2 feet 9 inches high. There was thus a wire and stringing network making a kind of platform.

The object was to train the plants along this platform and avoid the necessity for any further stringing and typing. It was hoped that the plants would grow upright until the weight of fruit caused them to fall down; at this time they would be laid along the netting, one row in one direction and the other in the opposite, and leaves would be removed from the stems of plants overlapped by the growing point of the next plant in the row. It was further hoped that the maturing fruit would hang down below the net where it could be easily picked, while all other work would be on top of the net, as if working at a bench.

As it appeared that the main difficulty at normal plant spacing would be to prevent over-crowding foliage, every third plant on one platform at each height, and every 2nd plant on another, were stopped when they reached platform height. In this trial there were 24 plants per row, 48 plants to each separate platform.

In order to get a comparison with another system of training, this trial was run with another small trial in the same house (see Trial No.5 1968/69) where a similar form of horizontal training was compared with layering.

Plants variety Eurocross B.B. from a December 4th sowing were planted on January 31st and the platforms erected shortly afterwards. The plants were very hard and took a long time to get established; they were thus very weak and slow to reach the platform. Cold weather and a severe attack of tomato mosiac virus also inhibited growth and made it late in the season before the training system was properly in operation. However, from then on growth was reasonably satisfactory and it was possible to train the plants as planned.

Observations on this trial are:-

a. Erecting the staging proved to be a fairly simple and quick operation. It could not be timed or costed properly because of the small plots involved, but the 1 inch timber appeared satisfactory for the purpose and this is relatively cheap.

b. Training the plants in the right direction, and removing leaves and shoots was an easy matter, especially where plants were stopped, just so long as it was done regularly once a week. If left longer the shoots became tangled and difficult to sort out. As expected, where no plants were stopped the foliage became over-crowded, while with these fairly weak growing plants, where every second plant was stopped, the remaining ones were slow to fill the gaps. Stopping every 3rd plant seemed about right. The work involved was timed and found to be about the same as for layering where all plants were kept growing; proportionately less where plants were stopped.

c. A curious characteristic of plant growth was observed; whenever plants were trained horizontally the flower trusses grew upwards towards the light. It had been hoped that trusses would hang down below the foliage, but when stems were turned over to achieve this object the head of the plant invariably twisted back on itself and began to grow in the opposite directions so that trusses again pointed upwards.

d. This made it impossible to train the stems in a straight line and at the same time cause the trusses to hang down, so they had to be left pointing upwards. When the fruit swelled, the weight pulled the trusses down among the leaves but it was then supported by the plant stems, and too much labour would be involved to free them and drop them between stems, strings and wires.

e. This phenomenon made picking difficult as fruit was often hidden under a mass of foliage. This was the biggest disadvantage found in this method of training, and made it appear unsuitable without some modification. In order to overcome this trouble one bed was adjusted so that the head of the plants were fastenod to a wire at a higher level than the platform; this involved extra wiring but only light wires as the weight of the crop was still being carried on the platform.

In the parallel trial the horizontally trained plants and those layered produced virtually indentical yields.

On this small evidence it appears worth investigating further systems of horizontal training; it is suggested that a system whereby the stems and fruit are supported by some form of simple structure, and say 2ft. - 3ft. from the ground, while the heads are hooked to a wire about 5 feet from the ground should be tried.

There is also an indication that with such a system of training it may be possible to halve the number of plants without significant loss of crop.

5. Culture of Tomatoes on Straw - (Trial No.5 1968/69)

In the summer of 1968 a trial was carried out by the Plant Protection Section with strains of tropical mushroom spawn (volvaria). It was hoped to find a suitable strain for growing under glass in Malta. The mushroom is grown on fresh straw; clearly if this crop became a commercial proposition in glasshouses in Malta in Summer (when most glasshouses are otherwise empty) it would be a great advantage if the straw could then be used for other crops.

Two straw beds were therefore laid down, using the straw previously used for tropical mushrooms. The beds were 9 inches deep, 2 feet wide, and 24 feet long set on a polythene sheet. The edges of the sheet were turned up to contain the straw, and held in place by string at intervals tied round the whole bed. Each

bed was treated with 1 lb dried blood, the fertilizer giving best results in the previous year's trial on straw, (Trial No.3 1967/68).

Plants of the variety Eurocross B.B. sown January 2nd, were planted directly in the straw on February 15th. One bed was trained horizontally as in Trial 4. 1968/69, except that the platform was only 21 inches from the ground. The other bed was strung to the overhead wires and layered.

Feeding and watering was according to the appearance of the plants, and in practice varied little from treatment of plants in soil.

In contrast to the previous year's experience with straw the plants grew evenly and normally being similar to the plants in soil though rather harder. The horizontally trained plants seemed harder than the vertical ones. As with the training trial, the crop was eventually neglected, receiving identical attention.

Yields were almost exactly the same for both training treatments, and on a level with the yields of the plants in the soil.

It is obviously possible to grow tomatoes in straw previously used for tropical mushrooms. This is a cheap and easy system, dispensing with soil preparation and sterilization. If tropical mushrooms became a commercial crop further trials should be done with the used straw; if not it is still worth investigating straw as a growing medium.

6. Carnation, Second Season Crop -(Trial No.6 1968/69)

This was a follow up of Trial No.7 1967/68. The object was to ascertain whether it was feasible to retain a carnation crop for 2 seasons under Maltese conditions. The plants were apparently quite healthy and there seemed no reason why they should not produce a good crop in the second season.

Details of planting, varieties and management are given in the report of the previous season's trial.

The plants were cut back 18 inches above the ground on 5th August. They produced new healthy growth quite quickly and began to flower on November 7th.

Watering and feeding continued as for the previous season and the other aspects of crop management were the same. However, growth was weak, flowers were small and the incidence of petal scorch was heavy. All this was attributed to built up of salts from irrigation water

in the soil beds. Attempts to leach the soil did not have much success and always produced yellowing of foliage presumably due to washing out nitrogen. Feeding to replace this again produced symptoms of salinity.

These results must be considered somewhat negative. Clearly with Difficulties with saline water the built-up of salts is cumulative and a second season crop is worse than the first unless leaching can be done more effectively than was possible here. On the other hand, plants remained healthy and broke freely and there seemed no reason why there should not be a good crop given a satisfactory water supply. A further trial under better conditions appears to be desirable.

7. Gerberas - (Trial No.7 1968/69)

This was a continuation of the soil treatment trial of the previous season Trial No.9 1967/68. No alterations were made to treatments.

The plants continued to grow satisfactorily and cropped heavily with good quality flowers. No difference could be observed from the different soil treatments.

Through spring and summer of 1969 plants were selected for seed and division. All good plants were labelled by colour; 16 were selected for seed and others for the establishment of separate clones for vegetative propagation. Flowers for seed were pollinated by hand, using flowers of the same plant or clone as pollinators. Seed was saved regularly as it ripened and a good stock obtained for new plant-raising and for distribution to interested farmers.

8. Roses - (Trial No.8 1969)

Following the disastrous failure of roses imported from Italy in the previous season it was decided to replant with dormant eye roses from Israel, all on indica major stock.

The glasshouse soil in the same house, No 1 was steam sterilized in the autumn of 1968, thoroughly leached, and left fallow until the roses arrived.

No further additional treatment was made to the soil. At the same time the south end of house No.10 was prepared for planting; this house had been steamed the previous season and used for straw culture and a small plot of strawberries.

The roses arrived in good condition on February, 10th; house No 1 was planted on 11/12th February and No. 10 on 13/14th February.

The following varieties were planted in No. 1.

H.T.S.

Baccara	-	Red
Superstar	-	Bright deep pink
Golden waves	-	Yellow

FLORIBUNDAS

Garnette	-	Red
Golden Garnette	-	Yellow
Zorina	-	Bright deep pink

No.10 was planted with Baccara only.

Plants were well watered in and subsequently kept moist with frequent overhead spraying. Bowser water was obtained with a CF of 10-12 which was considerably less saline than the tap water though more saline than was desirable. It was hoped however that the plants could be established using this water.

At first progress was promising, most of the dormant buds growing out rapidly, but they did not gain strength as they should, and soon many had shrivelled and died. Sometimes the stock grew but the inserted buds failed to grow out, but in many cases the stocks failed also. This pattern continued; all weak growing buds and stocks eventually went backwards, and died, while the stronger ones gradually gained momentum and began to produce stronger breaks. By early summer approximately 50 per cent of the floribunda varieties were dead and a larger proportion of the H.T.S. The remainder however showed promise of growing into strong bushes and the surviving stocks were putting out new growths. There was no recognisable pattern of losses; sometimes many plants in a row died leaving a large gap while further along the row there were many survivors side by side; in other places a plant would die while its neighbours on either side grew strongly. In order to test whether watering was the cause some rows and beds were watered heavily and others kept on the dry side; neither regime made any difference. Plants in both glasshouses showed similar effect; the losses in No. 10 were rather less than losses of Baccara in No.1 but they were still severe. The actual numbers surviving in house No 1 at mid-July and the end of November will be found at the end of this report.

On June 11th the routine tests on tap water suddenly showed that water of low conductivity was coming through, presumably from the new distillation plants. Almost immediately the surviving roses showed the effects; the best bushes began to send out much stronger growths than previously seen and stocks

produced luxuriant new shoots. Weaker bushes and stocks, obviously on the way out, recovered and strengthened. Losses stopped and the whole crop took on a healthy appearance.

A few stocks were rebudded; the buds took and began to grow almost at once. Cuttings were taken and inserted in the mist propagation house. Within 7 days they had rooted heavily and were ready for potting on. As an experiment a few cuttings were budded with different varieties before putting under mist. All buds took and grew out and the cuttings rooted easily. They were potted and grown on successfully.

Encouraged by this, all available F.A.O. and Government staff set about a renewal operation. During July, all surviving stocks in the greenhouses where the original bud had failed were rebudded. These buds showed practically 100% take and began to grow. Approximately 1,000 cuttings were budded with buds from the different varieties and inserted in the mist house, and in addition about 500 unbudded stock cuttings. All went well for some time; the earliest taken cuttings (stock only) rooted. During the whole of the period 11th June to 24th July the tap water had a C.F. of between 0 and 5 except for isolated days when it was higher, 3 days 8-10, one day 16 and 3 days 21-25. On the 25th July however it was 27 and it remained around this level for the next 3 weeks. Within a fortnight virtually all cuttings were dead. Roots were brown and buds shrivelled. The buds in the growing houses, many of them well grown out, also shrivelled and died, with the exception of a few early budded ones which survived. The stock cuttings which had been potted on survived longer, some died and the remainder ceased to grow and leaves turned greyish yellow. Later on, in September, a further period of good water revived them and approximately 100 of these remain available for budding when conditions are suitable. During September and October the salinity of water fluctuated; further cuttings were taken at intervals, so some budded and some not. In addition buds of Baccara and Golden waves were inserted in shoots of Indica major in the growing houses; these took successfully and the shoots were then made into cuttings each containing a bud and put under mist. Cuttings however take longer to root at this time of the year; some have already failed and at the time of watering (end of November, 1969) it was not possible to predict the outcome of this work.

It was intended to prune the bushes according to commercial practice in Israel. At first however the breaks were neither strong enough nor numerous enough to allow this. In order to encourage more breaks all strong new shoots in two beds in House No.10 were soft pinched at 18 inches. Far from encouraging new breaks this seemed to have a weakening effect on the plants. Later it was observed that any pruning or

cutting back caused a severe check on growth, except when water was good. During the re-budding operation many of the stocks were cut back to encourage the new bud to grow out. While water was good the outback stock produced new shoots in abundance; when it was bad new growth appeared with the utmost reluctance, and many more stocks, especially the weaker ones, died. Strong growing bushes and stocks, if not cut back, were able to tolerate saline water and continue to grow, though with little vigour.

In view of these observations it was decided to allow all bushes and stocks to grow wild throughout the summer, in order to encourage them to gain strength and consequently resistance to salinity. An apparent drawback to this procedure was that where adjacent bushes survived, the stronger tended to smother the weaker ones and become dominant. In view of the tendency for weak bushes to die out during periods of high water salinity perhaps this was not an undesirable effect.

Growth was erratic and uneven; during periods of good water there was extremely free growth and when water was saline it slowed and weakened. The colour of foliage changed also, bright green with good water and dull greyish green with bad. Some bushes thrived producing (with Baccara) up to 6 strong breaks from the base, ½ inch thick or more, and growing over 10 feet high, others barely survived or died out altogether, even if not overcrowded. No explanation could be offered for this extreme variation.

In September pruning for winter flowers began, and during this month and October, house No.1 and part of No.10 could not be completed due to lack of assistance and pressure of other work. Pruning was somewhat lighter than ought to be in the case if good water were guaranteed, in order to avoid cutting too hard and weakening the bushes. It consisted of removing all weak growths, cutting back the strongest growths to a height of about 4 feet and intermediate growths to a point where the wood was 3 1/16 inch thick. This was for H.T.'s; Floribundas were left with rather thinner growth.

No special feeding programme was used, as the effects of salinity would mask any fertilizer effects. The houses were fitted with Vomatic drip irrigation and received the same feeds as prepared for tomatoes plus waterings with clear water. Iron deficiency was the only nutrient symptom to show; this was easily and quickly corrected whenever it appeared by addition of iron chelate to the irrigation water at the rate of 1oz. per 8 gallons.

As anticipated powdery mildew was a constant problem, Sulphur lamps, 2 in each house, were installed by the Plant Pathologist and used from 21st March to 20th October. Various difficulties were experienced; lamps evaporated unevenly and one failed altogether; at one time some leaf scorch was experienced. Generally a partial control was obtained. Karathane spraying also helped. Mildew was kept but not eradicated.

Some of the early breaks which were left unstopped ran up to flower and subsequently flowering was continuous except immediately after pruning. Flowers were mostly of good size and form; usually stems were rather short and weak due to generally weak growth, but the strongest growing bushes produced excellent flowers on excellent stems. There was no point in recording yields due to the many plant losses and neglected growth. Following the September/October pruning a flush of bloom was obtained spread throughout November. The floribundas flowered in profusion and flowers were of excellent form. No disbudding was carried out so stems were short. Baccara and Superstar produced fine blooms, mostly on fairly thin stems because of the light pruning but some on good strong stems. Golden Waves was weak growing throughout the season.

No conclusions can be final at this stage as the trial is continuing. However, the following are the indications to date:-

a. Roses are extremely sensitive to water salinity; the crop should not be attempted unless good water is guaranteed. The exact degree of salinity tolerable is not known; for the present a CF of 6 or less is suggested as a basic requirement.

b. The most crucial stage is the establishment of bushes after planting; small increases in salinity may be fatal. This applies to young bushes, or to dormant eyes. It can be surmised that newly grafted stock would be even more sensitive. From past experience on the Farm it seems that well established bushes, planted when dormant, are more resistant and easier to establish, but these are too expensive for commercial production.

c. If dormant eyes are used, there is an indication that they should be benched or potted, and graded for planting, (planting batches of even bud development together). Otherwise, the stronger tend to dominate the weaker.

d. Mildew control by a combination of sulphur lamps and regular spraying is essential under

the conditions of this trial. Other methods, i.e. growing in high houses with high level ventilation, and frequent sprinkling or misting, should be tried.

e. The soil conditions prevailing in the glasshouses, i.e. prepared as for tomatoes, are quite suitable for roses, and first class growth can be obtained. Climatic conditions are also suitable for the production of high quality flowers. Iron deficiency must be watched for, but is easily corrected.

f. Pruning methods as used in Israel are prefectly satisfactory so long as the bushes are strong growing. With weak bushes, or with saline irrigation water, any cutting back weakens growth drastically and the only thing to do is to allow such bushes to grow wild, or to discard them.

g. Propogation by rooting cuttings under mist is quick and easy from June to September. Budding the cuttings before insertion, and budding shoots of the stock and allowing the buds to take before making cuttings of them are both highly promising methods of quick bush production and should be investigated further. Rooting and bud take are slower and less certain after the end of September.

h. Continuous use of water of a CF of 25 or over, perhaps even if much lower, will prevent rooting and will kill cuttings already rooted. Indications are that speed of rooting will be proportional to water CF.

Number of Plants in House 1 and 10

Variety	No. planted	Survivors 14/7/69 inc. rebudded stocks	Survivors 28/11/69 Bushes	Survivors 28/11/69 Stocks
	House No. 1			
Baccara	504	292	73	35
Golden Waves	624	268	97	128
Superstar	114	70	32	26
Garnette	114	61	47	4
Golden Garnette	114	59	34	21
Carol	114	57	56	7
Zorina	114	50	47	1
	House No. 10			
Baccara	948	No count	422	122

GOZO SECTION

1. Trial in Latin Square on Phosphate feeding on Tomatoes(Variety Fountain Cross)

This was a replication of a similar experiment held last year whose results proved statistically insignificant.

Four treatments were applied namely:-

(a) No phosphatic fertilizers

(b) Application of 6lb. of J.1. Base before planting.

(c) Same as in (b) plus 2 lbs 6 ozs granulated superphosphate at the end of January.

Each treatment was replicated in four plots each having 40 plants.

Normal cultural operations were carried out except for watering which was given according to the estimated potential water requirements calculated for Malta by Mr. Thread.

The difference in yield between the plots was not significant. This does not necessarily mean that phosphatic feeding is useless but it could show that the conditions were not favourable for such a trial. Amongst these conditions one must point out the following:-

(a) The heterogenity between plots

(b) Use of saline water for irrigation (C.F. ranging 15.0 to 20.0)

(c) Low soil temperature during the winter months.

It seems that after two trials one may conclude that increasing the phosphatic rate of application would not be economical.

Although the average yield per plant has gone up from 6.0 lbs in 1967/68 to 9.4 lbs in 1969, this increase in production was due partly to good weather conditions and partly to better growing conditions such as frequent and regular waterings, artificial setting with hormone, Lancashire method of trimming, and good control of diseases and pests.

2. Trial in Latin Square on Potassium/Nitrogen balanced feeding on Cucumbers (Variety "Telegraph")

During last year's observation trials it was observed that the routine feeding programme was not very well balanced with the result that some fruit had a rather long neck - probably a symptom of potash deficiency.

The trial consisted of three different treatments:

a) Treatment with 0.71 lbs.N. - 0 lbs K_2O

b) Treatment with 0.35 lbs.N. - 0.36 lbs K_2O

c) Treatment with 0.21 lbs.N. - 0.50 lbs K_2O

Seeds were sown on 26th August, 1968 and transplanted on 25th September, 1968. Hose-watering was carried out at three/four days intervals according to the weather conditions.

Picking was carried out between 21st November, 1968 and February 27th, 1969.

In none of the Latin squares was the difference between treatments significant.

The analysis of variance shows a high residual variance, which leads one to think that the trial was not undertaken in homogeneous conditions ; one of the main factors of heterogenity between the plots in the different values of soil conductivity. Only tap water was available with C.F. ranging from 15.0 to 20.0.

3. Demonstration of Crop of Carnations

Carnations were previously being grown on plain floor. As growing in troughs had proved successful, it was decided to put up a demonstration of this system in the glasshouse.

The glasshouse was not planted at the same time since not all varieties of carnations were available at the same time.

A feeding watering programme was laid out as follows:-

Base Dressing - Nil

Phosphate - 2 ozs. per sq. yard. Superphosphate dug in previous to planting.

Routine Feeding - 60 ozs (3 lb 12ozs) Sulphate of Ammonia : 27½ozs. (1.1b 11½ozs) Potassium Nitrate, 2ozs Sequestrene 16½ gallons per bed (1gall. per sq. yard) twice weekly on Tuesday and Fridays.

Routine Watering- 16½ galls p/bed daily except Tuesdays, Fridays and Sundays.

Overhead Spray - Once or twice daily in hot weather in addition to routine watering.

The routine feeding is approximately 500 p.p.m. of N. and 400 p.p.m. K_2O

This system is much appreciated by farmers who visit these glasshouses.

4. Trials of Crops under Plastic Tunnels "du Type Nantais"

Plastic Tunnels which are much cheaper than glass have been found to give very good results.

After a small trial last year it was decided to lay out a further trial.

The idea was to experiment with high quality plastic material rather than being hampered by possible defects of material not especially designed for horticulture purposes. The kinds of materials used were the following:-

a) P.P. Plast transparent polythene, 80 Microns thick.

b) P.P. Plast colourless polythene, 50 Microns thick and perforated.

c) P.P. Plast Vipac, colourless P.V.C. 60 microns thick and perforated.

d) P.P. Plast colourless P.V.C. nylon reinforced.

All plastic was supplied by F.A.O. and made in France.

Because of the different widths available, the trials were as follows:-

a) Transparent Polythene - arches 5ft long - 3ft wide.

b) Colourless perforated polythene - Arches 6ft. long - 3ft wide.

c) Colourless P.V.C. - arches 4½ft long - 3ft wide.

d) Nylon reinforced P.V.C. - arches 4ft long - 3ft wide.

e) Control without cover.

The 5 treatments were replicated four times and at random. Crops used were Sweet Pepper Variety 'California Wonder,' Sweet Pepper Variety 'Yellow Naharija', and Muskmelon Variety No. 1.

Perforated P.V.C. seemed to be the best covering material in this trial - it gave earlier

growth, best setting, and the size of the fruits was more suitable for the market. Yet the yield under plain polythene was slightly superior in weight.

However, it is still too early to draw definitive conclusions about the use of tunnels "du type Nantais" in Gozo.

The results of these trials are very encouraging. It was also very important to notice that the same covering material may be used successfully on one crop but not on another one or with one variety and not with another one.

5. Fertilizer Trials

With the co-operation of Mr. J.F. Obermaier, trials of wheat and barley were held at Xewkija and Kercem.

The winter season 1968/69 was a very dry one. Under these dry conditions and with unfavourable distribution of rainfall the experiments did fairly well.

The result was as follows:-

	Wheat	Barley
No Fertilizer	100%	100%
N.P.K. (40/40/40)	121%	109%
N.P.K. (60/80/80)	139%	138%

Yield increase of straw was on the average between 37% and 58%. Straw being a cash crop, the observed increase in yield in this commodity sounds very interesting.

EXTENSION SERVICE SECTION

The Extension Service Section embarked on the following trials in 1969:

(a) Performance of Pentland Dell Potato Seed
(b) Best variety of onions under local conditions
(c) Introduction of Tic Beans
(d) Introduction of Capelli Durum wheat.

The trials were not yet finished by the end of the year under review and a full report thereon will be given in the 1970 annual report.

FISHERIES SECTION

1. Salinity

Trial No. 1

The southern and eastern coastal waters including Marsaxlokk Bay were surveyed by thermistor for variations in temperature indicative of fresh water outflows into the sea in conjunction with a World Health Organization project for wastes disposal and water use.

Temperature readings indicative of variations in salinity fluctuated as follows:-

Date	Area	Outer	Inner
27.3.69	Marsaxlokk	59°	64°
29.3.69	Minqba	60°	63°
31.3.69	Marsascala	58°	62°
1.4.69	Mizieb	59°	59°
1.4.69	Raddiena	59°	64°

Trial No. 2

The increase in salinity brought about by the operation of three new distillers at the Electricity Power Station was being studied in conjunction with the Malta Electricity Board and its consultants, Messrs. Preece, Cardew and Rider. Several stations in a transverse between Customs House and the inner part of the Grand Harbour(Menqa) were observed for thermal fluctuations and the data taken to United Kingdom for studies of an alternative method of brine disposal.

2. Artificial Reefs

A joint project with M.H.O. was carried out during the year 1969, to create artificial reefs for fish breeding. The preselected area, 1¼ mile seawards from land bearing Ras l-Artal which is 35° 48' North and 14° 31' East, was surveyed by echo-sounder to explore the sea-bed and at the same time to fish by long lines for bottom-feeding fish so as to ascertain the productivity or otherwise of the area where it was intended to dump a number of old cars as a pilot project for the breeding of fish.

The dumping of vehicles in this area was successfully carried out in three different sorties. WHO were represented by Mr. Karmon and Mr. Topper.

3. Shellfish Culture

Since November 1968, an experiment was being carried out to assess the possibilities of the introduction of shellfish culture in Malta. The experiment was under the direction of Dr.Gracco De Nardo, an Italian expert. The experiment was not yet finalized by the end of the year.

4: Tuna Fishing

A study to try to improve the tuna-type longlining used by local fishermen was initiated in 1969 by Dr. G. De Nardo, an Italian expert. The study was not yet finalized by the end of the year.

5. Lobster Fishing

Trials were made by Mr. D. Lintern, a British expert, in connexion with the introduction of a new type of lobster pots. Unfortunately, the trials were unsuccessful.

PLANT PROTECTION SECTION

The Plant Protection Section carried out the following experiments during 1969:

1. Control of Verticillium wilt in tomatoes by the use of wilt-resistant varieties.

The experiment was carried from September, 1968 to June, 1969, at various private growers' glasshouses.

Results showed that all plants, even those of wilt resistant varieties became infected with ... Verticillium wilt.

2. Control of Powdery mildew of cucumbers

At a preliminary trial of a new systematic fungicide, PP 675, carried out from December, 1968 to March, 1969, it was observed that very good control of cucumber powder mildew could be obtained with PP 675 used as a soil drench.

Another trial was started in November, 1969, to test the effectiveness of PP 675 (soil drench) and Benlate (foliar applications). The trial was not yet completed by the end of 1969

3. Control of Powdery mildew of roses

An attempt to control this disease with vaporised sulphur was made in February/May, 1969.

A heavy clowd of sulphur vapour was applied initially, using a portable sulphur generator. The treatment was supplemented by electrical sulphur vaporisers, which were operated every night at recommended rates. When this treatment did not succeed, the rate of sulphur application was increased by 50%, but this was still inadequate.

The main conclusion was that powdery mildew could not be adequately controlled by sulphur vapour.

VI LAND, SOIL AND WATER

Land Registration

The number of land transfers was 416. The transfers of land were the results of various factors such as death, emigration, abondonment of land for more remunerative work, infirmity, and erection of houses and factories, and construction of roads on agricultural land.

Assessments of Compensation

The demand for assessments of compensation paid to farmers for agricultural land taken up by Government for industrial and other public purposes continued to increase rapidly and in order to cope with the extra load of work the Lands Officer had to be helped by two Agricultural Inspectors working after office hours. A large number of assessments carried out during the year were due to the Government's decision to build numerous houses and flats in various parts of the island.

The number of assessments carried during the last three years was as follows:-

Department	1967	1968	1969
Public Works	83	98	130
Malta Electricity Board	182	106	144
Lands	15	43	78
Agriculture	5	12	2
Education	3	4	-
Water Works	9	-	10
Totals	297	263	364

Soil Preservation

Soil preservation in these islands is regulated by the Fertile Soil (Preservation) Ordinance of 1935, which is enforced by the soil inspector working under the supervision of the head of the Land and Water Use Section.

During the year under review, 719 building notices were received, and about 185, 298 cubic yards

of fertile soil were removed to new sites. The corresponding figures in 1968 were 712, and 71,792.

324 sites were inspected in 1969 as against 340 in 1968.

Water Resources

In 1969 plans were made to establish water supply points in various localities in Malta and to utilise underground reservoirs in neighbouring areas by laying a network of pipelines.

The following water supply points were established during the year.

(i) Government Farm
(ii) Wied Incita Nursery
(iii) Tal-Kwand Nursery

A pipeline was laid between Ordinance Street reservoir in Valletta and Hastings Gardens and another one between the Floriana School reservoir and the Floriana central strips, but by the end of the year no water pumps had yet been fixed because a call for tenders for the supply of six submersible pumps proved fruitless.

VII MARKETING

Marketing Centres

Agriculture produce is put on the market mainly through Pitkals (middlemen) and through the Co-operative Societies.

The number of Pitkals was 35 in 1969, distributed as follows:-

B'Kara	-	7
Marsa	-	5
Mosta	-	2
Rabat	-	5
Zebbug	-	3
Valletta	-	10
Gozo	-	3

All sales through pitkals were made under the supervision of officials of the Department, with the exception of those made through the Valletta and Gozo Pitkals.

Sales through Pitkals (under the supervision of the Department) amounted to £872,293 as against £688,833 in 1968.

There were, in 1969, seven Co-operative Societies, two at Marsa and one in each of the following towns and villages: B'kara, Rabat, Siggiewi, Zebbug and Valletta.

Sales through the Co-operative Societies amounted to about £164,000 in 1969.

The number of Pitkals licensed to sell fish at the Wholesale Fishmarket was 15, whereof 3 foreign, 1,349,066 rotoli of fish were sold at the wholesale Fishmarket in 1969.

Licences

All applications to the Director of Trade for the export and import of land produce and livestock pass through the Department.

Exports

During the year under review the value of agricultural products exported amounted to £2,304,000. The chief items exported were:

Meat and meat preparations	-	£815,000
Ware potatoes	-	£526,000
Wine	-	£255,000
Flowers, plant cuttings, seeds and bulbs	-	£244,000

Imports

In 1969 the value of agricultural products imported amounted to £12,586,000. The chief items imported were:

Cereals and cereal preparations	-	£3,540,000
Meat and meat preparations	-	2,770,000
Fruits and vegetables	-	2,243,000
Dairy products, eggs and honey	-	1,554,000
Feeding-stuff for animals	-	1,022,000

Inspections

Agricultural Inspectors made regular inspections on retailers of fresh fruit, vegetables and meat to check prices.

25 retailers (17 greengrocers and hawkers, and 8 butchers) were reported to the Commissioner of Police for having contravened the Agricultural Produce (Marketing) Regulations, 1952. They were taken to court; one of them was fined £4 and the others £3 each.

VIII PUBLIC GARDENS

The drive to embellish the numerous public gardens was continued throughout 1969.

During the year under review, 12,340 trees and shrubs were planted in public gardens, traffic islands, open spaces and along roads. These trees and shrubs were supplied by the Nurseries which are kept by the Public Gardens Section. Moreover, 7,572 trees and shrubs were supplied to the Afforestation Section and 4,500 were sold to the public.

To commemorate the 20th anniversary of the Council of Europe a lane in San Anton Gardens was named "Europa Lane". A number of trees from different countries in Europe were planted in the plots bordering the lane.

At San Anton Gardens too, the Prime Minister planted a tree to commemorate the centenary of the birth of Mahatma Gandhi.

IX AFFORESTATION

The drive by the Department to afforest the Island continued without abatement in 1969. Nearly 60,000 trees (mostly acacias and pines) were planted at Ghajn Tuffieha, Chadwick Lakes, Armier, Miżieb, Mġarr, and Buskett. This figure does not include 12,340 trees planted in public gardens, roads etc by the Public Gardens Section and 6,879 shrubs and trees added or replaced in Gozo by the Gozo Section.

Many private organizations gave help to the Department in planting thousands of trees. Among these were members of Din l-Art Helwa, the Salesian Boys' Brigade, the Teens and Twenties Talent Trust and the Civil Defence Corps. The Plant a Tree in Malta Committee, whose chairman is the Hon. Minister of Trade, Industry and Agriculture, was a great help in the afforestation drive.

The Israeli Government generously donated another 26,000 plants consisting of pines and acacias and provided an expert, Mr. Moshe Alon, to advise the Department in its afforestation drive.

X GOVERNMENT EXPERIMENTAL FARM

Introduction

During 1969, the Government Experimental Farm pursued its role of:-

1) Demonstrating to farmers modern techniques and equipment.
2) Producing and providing farmers with seed of improved crop varieties.
3) Breeding and providing livestock keepers and farmers with selected animals.
4) Carrying out, in conjunction with other sections of the Department research and experimentation in animal and crop husbandry.

All activities were duly recorded and the data studied and analysed with the object of giving improved service to the farming community. It is pleasing to note that the farmer is more and more appreciating the value of the Government Farm as a demonstration centre which is amply proved by the increased number of visits made by farmers from all parts of the Island.

Livestock

Dairy: The herd on the Government Farm consisted of 4 bulls and 15 cows plus followers, all Friesians. In addition one cow and one heifer of the local breed of cattle were kept as an example of the old multipurpose animal used to pull the plough and as a draft animal.

The herd was Tb and Brucella free, and periodical checks were carried out by the Veterinary Service to ensure that they remained free. The cows were mated by artificial insemination. Imported frozen semen was used to improve the standard of the herd.

Sales during the year consisted of 19,467 gallons of milk delivered to MMU, 8 heifers, 6 bull calves, 1 young bull and 9 cows.

Sheep and Goats: A sheep section was started this year with the importation in October from U.K. of 20 ewes and 2 rams of the Suffolk breed. The object of bringing in this new breed was to produce fat lamb for the local market and by crossing with the carcase quality of local mutton. For this purpose 6 Maltese ewes were also purchased in December.

100 Mullards, 50 partridges and 100 chinese pheasants, day old chicks were imported from U.K. All these birds were successfully reared without difficulty. In September Pekin ducks were also imported and soon adapted themselves to our climate.

During the Christmas season old surplus turkeys were sold, and the 111 stags and 138 hens were quickly booked up by the eager public. The demand for turkeys eggs especially during March/April outstripped demand. Ducks and geese eggs were also in demand, while pheasant and guinea fowl eggs were for sale for the first time.

Eggs fold for hatching purposes were as follows:-

Ducks - 631; Turkeys - 3,550; Guinea fowls - 330;
Pheasants - 870; Geese - 95.

There was also a great demand for young stock and therefore as many eggs as possible were hatched during the season. All other surplus eggs were sold to the Medical and Health Department.

Hatching results were not very satisfactory as the incubators being used were those originally imported to hatch poultry eggs and were not very suitable for turkey and game eggs.

Young stock hatched was as follows:-

Ducklings - 928; Turkey poults - 87;
Guinea fowls - 75; Goslings - 7; Pheasants - 10.

The rabbit section comprised the three established commercial meat breeds, New Zealand White, Flemish Giant and Californian, plus the Volvo breed which has been introduced this year.

The demand for breeding rabbits remained constantly high and outstripped supply, and expansion of the unit was decided upon.

A stud rabbit service was maintained on the Government Farm and subsidiary studs were kept at Rabat and Msida. All studs were very well patronised and the heavy demand necessitated frequent replacement of worn out bucks. Number of rabbits sold during the year was follows:-

N.Z.W.	Fl. Giant	Californian	Volvo
Bucks-171	bucks-40	bucks - 14	bucks - 4
does - 170	does -41	does - 17	does - 3

Crops Section

The cultivated area of the farm comprised 147 tumoli, [illegible] the growing of sulla wheat barley and vetches for live-stock feed. Numerous and extensive trials were carried out in conjunction with the F.A.O. and German consultants and also in co-operation with the Royal Malta University.

F.A.O. experts carried out trials on wheat, tomatoes, onions, and garden vegetables. In addition a number of fields were planted out with almond and peach trees. The German fertilizer consultant carried out trial with maize, sorghum, beans, tomatoes, potatoes, clover, wheat, barley and onions.

The Royal Malta University started trials on the control of "Arobanche" a parasite of the bean plant. Results obtained were very promising and warrant further trials being repeated.

The crops section again provided farmers with young seedlings and seed of K'Rabi, tomatoes, onions, lettuce, egg plants and bell-peppers.

Farm Garage

During the year repair work at the Government Farm garage greatly increased in volume, since all vehicles and equipment of the Department started being maintained and repaired there.

In addition to routine garage work the staff of the machine station undertook all mechanical work required by the Farm in connexion with irrigation, ploughing, cultivation and harvesting of crops.

XI VITICULTURE AND ENOLOGY

VITICULTURE

1. Table grapes

The table grape section at Buskett Grape and wine Station may now be considered to have reached the productive stage following the "training period" referred to in earlier reports. The total amount of crop harvested this season and sold to the Pitkali amounted to 5,930 rotoli. This would compare very favourably with 1968's crop viz. 2,430 rotoli. It should be stated that 96% of the above weights were harvested from the experimental station proper, whereas the remainder was the total crop of the aged and unproductive vines at lower Buskett. The area bearing these unproductive vines is being gradually reconverted in connection with vine production and propagation.

2. Wine Grapes

The rootstocks planted last season are well on their way for the grafting operation due next season. This trial should provide invaluable information in connection with the possibility of a specific grape variety showing up any significant differences arising out of the rootstock on to which it has been grafted. The two rootstocks involved are the Ruggieri 140 and the Paulsen 1,103. The wine grape varieties to be grafted are: Petit Sirah, Ruby Cabernet, Malvasia Bianca, Rubired, Tinta Madeira, Emerald Riesling, French Colombard, St. Emillion and Merlot. Vinification trials would obviously be the ultimate goal of this project.

3. Mother Rootstock

Further expansion was achieved by planting a further 735 specimens of the P.1,103 type. In 1969, after local production had stopped for about 20 years, the Department harvested the first fruits of its intensive drive on the local propagation and production of rooted cuttings. A total of 22,730 locally grown rooted cuttings were available for distribution and sale to farmers, as well as to meet the Department's internal needs. It might be apt to record that this stock met with the complete approval of the local farmer who invariably insisted on the local stock as against the imported one, thereby creating an embarassing situation since not enough locally grown stock was available to satisfy this year's demand for 49,000 (Malta only). The rootability trials were continued.

4. Substations

Continued care and maintenance operations were carried out as necessary on the existing substations. This year one substation was grafted.

ENOLOGY

1. Legislation

The Wine Act, 1969, came into force on the 1st December, 1969. The Wine Ordinance, the Wine (control) Regulations, 1955, the Sale of Wine Imported in Bulk (control) Regulations, 1956, and section 122 of the Food, Drugs and Drinking Water Ordinance were repealed.

2. Laboratory

The enology laboratory reached its final stages of completion, and probably the first vinification trials would be carried out in 1970.

XII VETERINARY SERVICES

FUNCTIONS

The main activities of the Veterinary Services Division are:-

a) Civil Abattoir;
b) Field work
c) Diagnostic work

CIVIL ABATTOIR

All animals, must by law, be slaughtered in a Government Abattoir by Government butchers and inspected by Government Veterinary Surgeons assisted by a qualified Meat Inspector. Pigs slaughtered by the Malta Bacon Factory are, however, an exception to this rule, in so far as they are allowed to be slaughtered at the Bacon Factory, although they are also subjected to inspection by Government Veterinary Surgeons and graded by a Government Officer. By these arrangements the health of the population is safeguarded.

The following animals were slaughtered in Malta and Gozo Civil Abattoirs during 1969:-

	Malta		Gozo	
	Number	Rotoli	Number	Rotoli
Cattle	9,963	3,062,818	734	286,833
Equines	834	180,841	4	926
Pigs	44,459	3,891,502	3,115	290,378
Sheep	3,735	150,815	135	3,994
Lambs	3,363	41,910	370	2,821
Goats	4,233	76,749	58	1,295
Kids	1,550	7,366	156	752
Total	68,137	7,412,001	4,572	586,999

47,574 pigs were slaughtered in Malta and Gozo during the year under review and, if to this number, we add another 8,129 pigs slaughtered at the Malta Bacon Factory we find that 55,703 pigs were slaughtred.

This figure of 55,703 exceeds the number of local pigs slaughtered during 1968 both at the Civil Abattoirs (38161) and at the Malta Bacon Factory (2229) by 15,313 and constitutes a record for any year.

The facilities available and the hygienic conditions existing at the present Civil Abattoir cannot be termed ideal. However, in view of the progress made and the advanced stages reached in the plans for the building of a new abattoir, which is expected to be the last word in hygiene and other facilities, it was not considered judicious to spend money to improve existing conditions.

FIELD ACTIVITIES

Activities in the Field consist in the prevention, control and eradication of animal diseases.

Prevention

Whereas Malta is self supporting in respect of fresh pork and mutton, yet, for its supply of fresh beef, it must rely on the importation of about 7,000 head of store cattle every year. Out of the total number of 10,697 cattle slaughtered during the year under review, only 3,565 were locally reared. The remaining 7,132 had to be imported as store cattle from different European countries, mainly from Yugoslavia, Bulgaria and Roumania. The imported cattle are fattened from 3 to 5 months before they are slaughtered.

This importation carried out throughout the whole year, constitutes a real and serious danger of introducing some infectious or contagious disease. However since the majority of the local population prefer fresh to frozen meat, we cannot stop importation completely. Very strict precautions however, are taken before any consignment of store cattle is allowed into Malta. In fact no Import Licence is granted for the importation of store cattle, from any country, unless that country has been free from Foot and Mouth Disease, at the time of loading, for at least two months.

By adopting such measures, Malta has remained free from Foot and Mouth Disease since 1946, a record beaten only by a few countries.

Besides the strict control exercised before granting an Import Licence, all cattle are examined immediately on arrival. They are then kept under observation for another 3 to 5 days and again examined before they are released.

Horses are likewise examined for Glanders and Farcy and other infectious diseases on arrival, and dogs and cats imported from countries where Rabies is known to exist, are kept in quarantine for six months in Government Quarantine Kennels, The same period of quarantine is imposed on dogs and cats coming from Rabies-free countries, if they happen during transit to have travelled through countries where Rabies exists.

The confirmed case of Rabies in an imported dog in the United Kingdom last October, created a big problem for us. Usually over 80 dogs and cats are imported into Malta from the U.K. every six months and whereas before the outbreak, all dogs and cats coming from the UK accompanied by an Official Veterinary Certificate were released from quarantine after being examined, now we have to provide kennel accommodation for such a large number of pets. The actual number of Government kennels available falls far short of the number of dogs and cats which were imported into Malta since October and up to now we have been able to cope with the problem thanks to the co-operation and help given by R.S.P.C.A. (Malta) Branch, who have put at our disposal their boarding kennels.

However, there are not sufficient runs for such a large number of dogs and therefore Government is building new kennels and runs at the ex. R.N. Abattoir adjacent to the Civil Abattoir to relieve the congestion from the restricted space available to the R.S.P.C.A. at the Floriana Dogs' Home.

Control

In the past the most prevalent animal diseases were:- Bovines: Tuberculosis, Brucellosis, Mastitis & Enteritis in calves; Swine: Swine Fever, Swine Erysipelas and Enteritis in young pigs; Caprines: Brucellosis; Poultry: Fowl Pox, Newcastle Disease and Respiratory Diseases.

a) Bovines

The control of Tuberculosis and Brucellosis will be explained under the heading "Eradication".

Mastitis in cattle is not as widespread as it was thought to be. However as farmers have got into the habit of buying, without prescription, intramammary penicillin and injecting it into diseased udders, irrespective of the type of bacteria causing the disease, we cannot have a true picture of the real incidence in cows. A lot of money is being wasted in this way by farmers, who as a rule, inject more penicillin than is necessary, and they do not bother to find the real cause of Mastitis.

Now that the Veterinary Diagnostic Laboratory at the Civil Abattoir has been established, farmers are encouraged to bring their milk at this Laboratory to be examined before treatment is started. During the year under review only 40 farmers availed themselves of such facilities.

Calfhood mortality, mainly associated with E. Coli infection is still a cause of heavy losses to the industry. Accurate statistics are difficult to obtain, but the general impression is that some progress was made in 1969.

Mortality in calves can be reduced by feeding the cows with wi. -balanced rations, by having calving boxes which can be easily disinfected and by having separate calf pens.

b) Swine

By law, all pigs should be vaccinated against Swine Fever, but a certain latitude has been allowed just to see whether Swine Fever would appear in some unvaccinated pigs.

During 1968, only 26,147 pigs were vaccinated out of the 40,390 pigs slaughtered. The number of vaccinated pigs therefore represented only 65% of the number of pigs slaughtered. During 1969, 22,000 pigs were vaccinated out of the 55,703 slaughtered which represents only 40% of the number of pigs slaughtered.

Although during the last two years, an average of only 52% of our pigs were vaccinated not a single case of Swine Fever was detected.

Swine Erysipelas which used to be very prevalent is now very rare and its ill-effects on our pig population are mitigated by the fact that nowadays it is easily cured and whenever one pig dies of swine erysipelas, the rest of the pigs are vaccinated in time and cured. Free vaccination of pigs against Swine Erysipelas is also carried out by Government on a voluntary basis and 6,369 in Malta and 883 pigs in Gozo were prophylactically vaccinated against Swine Erysipelas in 1969.

c) Caprines

The principal disease affecting goats is Brucella Melitensis. The losses through abortion and reduced milk yield must be quite relevant although our farmers do not seem to appreciate such losses as they occur gradually and only few goats abort every year.

The incidence of Brucellosis (Brucella Melitensis) amounts to about 5% in the goats in Gozo and about 20% in the goats in Malta. The discrepancy in the incidence of the disease amongst the goats in Gozo and Malta respectively can be explained by the fact that for three years several Gozitan herdsmen participated in a Voluntary scheme, whereby all goats in the herd were tested and all positive reactors were slaughtered by the owner who received a compensation of 15s/- bonus per non-infected goat in the herd.

This scheme which was popular with some herdsmen was rather expensive, although it had the desired effects in inducing several herdsmen to join the scheme, to make them appreciate the beneficial effects of getting rid of all positive reactors and not to introduce any other goats that were not tested before and found free from Brucellosis. By introducing this voluntary scheme the incidence of Brucellosis in the Gozitan goats became so low that the Department decided to introduce a compulsory slaughter compensation scheme similar to the Disease Eradication Scheme in cows. Due to certain difficulties the operation was not started in 1969.

After years of research work carried out at the Government Farm, the Rev. 1 vaccine was found to be effective in conferring a strong immunity in non-pregnant goats. On the strength of such results the vaccination of female kids between 3 and 6 months of age was made compulsory by law. However it is regretted to state that only a small number of kids have been vaccinated. It is rather difficult to trace the kids, and herdsmen are not being co-operative in registering their kids.

d) Poultry

During the last three months of 1968 and the first four months of 1969, the free vaccination of poultry against Newcastle Disease was stopped. Such decision, taken after several months of complete freedom from such disease, was based on the following extract found in "Disease of Poultry" prepared under the auspicies of the Technical Development Committee of the British Veterinary Association:

"In some circumstances, even those (vaccines) prepared from mild viruses can cause illness, mortality, and checks in growth rate and egg production. In other circumtances without setting up clinical disease, their use may cause stress to the bird and thus precipitate outbreaks of other diseases, particularly those of a respiratory nature. As a result, in some countries where

live vaccines have been widely used (and particularly in association with intensive husbandry), the poultry industry has been faced with problems as great, or greater in economic signficance, than Newcastle Disease alone had previously presented".

When however in April, 1969, an isolated outbreak of Newcastle Disease (fortunately quickly suppressed) was detected on a small farm outside Zabbar, the vaccination of small units of poultry against Newcastle Disease was resumed.

Eradication

The Disease Eradication Scheme which we hoped to bring to a happy conclusion by March, 1969, that is by the end of the 2nd Five Year Development Plan, received a severe setback in 1968. The number of TB positive reactors found in Malta and Gozo was much higher than expected and Brucellosis (Brucella Abortus) appeared in several cows, spread in various herds. Owing to lack of funds, the mojority of positive reactors could not be slaughtered as soon as they were detected, with the consequent result that both diseases kept on spreading to other cows. 20TB and 80 Brucella positive reactors were left unslaughtered.

During the year under review £12,000 were voted and these were not enough to slaughter the already known positive reactors let alone the others that had been kept in contact with reactors and contracted the disease. Herdsmen whose reactors were left unslaughtered became unco-operative.

It is hoped that more funds will be made available in the near future so that the Disease Eradication Scheme can come to a successful conclusion.

DIAGNOSTIC WORK

Post Mortem Examinations

855 post mortem examinations (involving 346 owners) were made in 1969, as follows:

Poultry	580
Pigs	99
Cattle	43
Rabbits	99
Miscellaneous	34

Poultry

On the 11th April, 1969, there was an outbreak of Newcastle Disease in a small farm outside Zabbar. Immediate steps were taken to disinfect the place and about 30 birds were destroyed by fire within a few hours of the discovery of this disease. The whole area around the farm was combed for poultry on a door to door basis and vaccine distributed free. The usual Press Releases were made and the movement of poultry to Gozo from Malta was stopped. No further outbreaks were reported in 1969.

Gamboro disease continued to persist during the first six months of the year but in the latter half of the year the cases reported were very few. This is typical of the disease, there is first a flare up, then when the stock acquires immunity the disease tapers off. I have a feeling that following reports from other countries, the disease might visit us again in 2 or 3 years time, when the immunity in our stocks has finished. Today, a vaccine against this disease is available.

Saimonellosis continues to be a prevalent disease in our island. Thanks to the drugs available on the market the disease can be stopped in a few days but it is extremely difficult to stop its spread to other farms. Bad management continues to be probably our main headache especially where chicks are concerned.

Pigs

99 Post Mortems were carried out on pigs; their chief complaint being ENTERITIS which was mainly due to E. COLI infections or in some cases to the viral type of ENTERITIS. One single case of LISTERELIA was discovered in a sow.

Cattle

We had 43 cases of milk samples coming from MASTITIS cases. When the farmer sought our help early we succeeded in curing the disease. We found cases where the milk samples contained antibiotics with the consequence that no growth was found out on our blood-agar cultures. A very quick method of finding the Bacterial cause of Mastitis is being used presently in the Laboratory.

We have often been involved in T.B. testing of glands which came from the Abattoir; this is a further help in the meat inspection of T.B. carcases.

Rabbits

The interest in rabbit keeping in Malta is steadily increasing. Laboratory investigations showed that in most cases the rabbit suffered from one form or another of Enteritis or from Rhinitis associated with Haemophilus infections.

The use of polyvalent vaccine, now on the market, seems to be very effective in stopping the common diseases associated with rabbits.

Artificial Insemination

A total of just over 1,700 inseminations were performed during 1969. This is an average of 141 inseminations a month. It must be mentioned that A.I. calves are fetching more money on the market. This year we could have easily broken all records using frozen semen but for a couple of strikes at London Airport which prevented us receiving semen in time.

As a trial, ten sows (6 large White and 4 Landrace) were artificially inseminated with imported boars' semen in October, 1969, at the Government Experimental Farm. At the end of the year no conclusive results could be recorded.

XIII CO-OPERATIVE SOCIETIES

The Co-operative Societies Division is entrusted with the registration and supervision of the Co-operative Societies as required by the Co-operative Societies Ordinance and Regulations of 1946, the principal duty being the auditing of the accounts of the Co-operative Societies.

During the year under review the duties of Registrar of Co-operative Societies were shed by the Director and taken over by an Administrative Officer.

The number of registered societies increased by one. An enquiry which might lead to the formation of a housing co-operative was initiated.

The co-operative Societies on 31st December, 1969, were:

Primary

Agricultural Produce	16	(3 in course of liquidation)
Agricultural Equipment	4	(1 " " " "
Tailors (supply)	1	(1 " " " "
Milk Producers	1	
Consumers	4	(2 in course of liquidation)
Milk and Agricultural Producers	1	
Wine Producers	1	
Egg Producers	2	(2 in course of liquidation)
Agricultural Trading	1	
Fisheries Co-operative	1	
Central		
Agricultural	1	
	33	

Excluding members of Societies in Liquidation the total number of members of Co-operative Societies was 2,112 at the end of the year.

The principal assets and liabilities of the Co-operative Societies at the end of the year were:

Liabilities:

Shares	£ 74,181	
Reserves and Provision	43,122	
Creditors	171,125	
Disposable Balances	20,892	
Loans	124,618	
		£433,938

Assets:

Immovables	£163,065	
Movable and Stock	62,741	
Debtors	151,879	
Investments	4,155	
Cash in hand and at Bank	50,677	
Deficiency in Capital	1,421	
		£433,938

The Malta Milk Producers Co-operative Society was given a loan of £23,098 and a grant of £15,399 to erect and equip a Provender Mill for compound manufacture.

Co-operative Societies dealing in the sale of agricultural produce were given £7,872 in 1969, as a Government contribution towards marketing expenses.

XIV FISHERIES

During 1969, the same services as in previous years were afforded to operators in the fishing industry in order to facilitate operations, lessen the dangers and alleviate the hardships attendant to the trade. These services include:

a) Maintenance of Slipways and improvements at Fishing Centres;

b) Refund to fishermen of duty on diesel oil, petrol and kerosene;

c) Vocational Training and propaganda;

d) Fishing Equipment Supply Service;

e) Maintenance of fishmarket and running a Fish Marketing Scheme;

f) Maintenance of Fishermen's Recreational Centre;

g) Grants and Loans for the acquisition of boats and equipment;

h) Experimental fishing and research;

i) Construction and extension of moles and berthing facilities;

j) Dredging works in Fishing ports;

k) Provision and maintenance of hand and/or electrically driven winches.

Fishing craft, fishing implements, fish-hawkers and pitkali (middle-men) are licensed by this office. These licences are normally renewable every year. Special permits are also issued for fishing sites during the dolphin-fish season and for fishing within Grand Harbour and Marsamxett Creek for particular species of shoaling fish. Special permits for foreign vessels to land fish are also issued when local catches do not meet fully the demand at the Valletta wholesale fishmarket.

Landings

Total local landings for January to December 1969 amounted to 1,456,701 rotoli or 1,138 metric tons of which 1,265,360 rotoli were auctioned directly at the Valletta wholesale fishmarket while the rest was probably hawked by fishermen in other districts. Initially landings for 1969 were better than those of the previous year and up to August, landings for the first eight months of 1969 amounted to 873,603 rotoli while those for the same period of the previous year were 744,473. However persistent spells of rough seas at the beginning of the dolphin-fish season, wrecked most of the floats and in spite of float

replacements by the majority of fishermen, dolphin-fish landings during the autumn and late summer were reduced by some 50% of those of the previous year, i.e. 252,245 in 1969 and 500,277 in 1968. The decrease of some 250,000 rotoli in dolphin-fish landings was somewhat offset by the more abundant lampara catches and total annual landings for 1969 were only 58,333 rotoli less than the total for the preceding year.

Imported Fresh Fish

The total weight of imported fresh fish which was sold at the Wholesale Fishmarket during 1969 amounted to 83,706 rotoli. The wholssale value was £19,369. Most of the fish landed was trawled. Other species were mackerel, tunny and swordfish. 83 permits were issued to foreign vessels to land fish and £771. 15s. 3d. were collected as Levy Tax. All the fish was landed under the surveillance of a Fisheries Officer when the landing of imported fresh fish was in progress, so that a 20% tariff was paid by the importer on molluscs and crustaceans.

Landings by Trawlers

The landings by local trawlers and M.F.V.s during 1969 were 334,815 rotoli valued (wholesale) £54,917.

Pitkali

The number of pitkali licensed to sell fish at the Wholesale Fishmarket was as follows:

Local	-	12
Foreign	-	3

Hawkers

The Wholesale Fishmarket was daily frequented by hawkers. On Wednesdays and Fridays, the number of fish hawkers was generally greater than on other days of the week. About 340 hawkers were active at the Fishmarket throughout the year but this number was augmented by another 160 during the Lampuki season.

61 new applications were received from persons to act as fish hawkers of which 38 were approved.

Loans and Grants to Fishermen

During the year 1969, Financial Assistance to fishermen was awarded to the amount of £7,295. in the form of loans at 1% Interest and £4,144 in the form of Grants.

The awardees as in previous years were made to contribute 30% of the cost of the project, except in the case of the replacement of engines, the contribution being 60%.

In the case of construction and modification to craft, the beneficiary contributed 20% of the outlay and received a loan of 50% and a grant of 30%; for the purchase of equipment and repairs a contribution of 30% had to be made by the applicants who got the balance in the form of 50% as a loan and 20% as a Grant; for the replacement of petrol/paraffin engines a grant of 40% was awarded, the balance of 60% being applicant's contribution.

From the abovementioned loans and grants, ten fishermen benefitted, of these, seven were Maltese and three Gozitans.

Training and Research

Dissemination of technical information regarding progressive developments in fisheries continued to be imparted through regular Sunday broadcasts, departmental publications and advice to individual fishermen. A long term project for the establishment of a regular fisheries course was approved and funds provided under the Vocational Training Vote of the Education Department. Applications for this course were issued.

For experiments carried out by the section see Chapter V.

Visit by the French Government Research Vessel "Thalassa".

The largest and best equipped French fishing research vessel "Thalassa" arrived in the Grand Harbour, Valletta on Friday 14th November 1969 after having completed the first part of an exploratory fishing campaign in the Tunisia/Malta /Libya waters. This is the first known campaign of its kind ever to occur in the previously unexplored Central Mediterranean Basin of whih the Maltese Islands form part. It is of particular interest for the extension of Maltese fisheries since the other area between Malta and Sicily has already undergone intensive exploitation.

In charge of the expedition was Monsieur Claude Maurin, Director of French Fisheries Research who for the past six years had been drawing attention to the necessity for information regarding the Mediterranean Central Basin and in 1964 was co-originator of a project submitted to the U.N.E.S.C.O.

Intergovernmental Oceanographic Commission for such an exploratory campaign.

Fishing Equipment Supply Service

Steps were taken during the year under review to have the stores at Barriera, Marsaxlokk and Gozo as well stocked as funds available for this service permitted. During the calendar year 1969, £7,627. 12s. 7d. of fishing equipment was purchased. The sale of fishing gear for the same calendar year amounted to £10,084. 15s. 2d. The subsidy allowed on nylon nets and corkwood amounted to £477. 2s. 8d. This amount was reduced by £256, which represents profit made on other items of equipment.

Kannizzati Fishery

As in previous years the allocation of sites 'in situ' was carried out successfully by this section. This involves planning in advance to ensure that the best possible use is made of these sites by fishermen.

Unfortunately, this year due to unusually heavy storms during September, a large number of kannizzati floats were lost. Besides, as the weather conditions were unfavourable, most of the boats engaged in this type of fishery were unable to put out to sea. Consequently, most of these fishermen had to lay their floats anew, thus using up all the material they had in stock. As such, it was envisaged that the demand by these fishermen for fishing material would be much heavier during the next season.

The following kannizzati sites per district were laid:

District	No. of sites
St. Paul's Bay	13
Valletta	11
Marsaskala	8
Marsaxlokk S.W.	24
Marsaxlokk S.E.	7
W/Zurrieq	4
Gnejna	4
Mgarr S.W.	7
Xlendi	8
Marsalforn	4
Mgarr N.E.	5
TOTAL	95 sites

Implements

During 1969, the following licences to make use of Fishing Implements were issued:

Lampara nets	16
Terrieha (Cast net)	36
Tartarun (Seine net)	42
Kopp taċ-ċkal	16
Gangmu (shrimp dredge)	43
Trawl nets	5
Lights & Sponge glass	60
Nassi (pots)	100
Parit	180
Other Implements	24
Special permits	8

There was a noticeable increase in the number of applications for the use of trammel and gilling nets.

Hydrospace Seminar

The Vocational Training Officer participated in a symposium on "The utilization of hydrospace" held at the Royal University of Malta under the auspices of the Summer Schools on Problems of World Order.

Symposium/GFCM Conference

The Technical Assistant (Gear) participated as Malta Delegate in a Symposium on Mediterranean Depth Resources and their exploitation and also the biennial 10th General Fisheries Council for the Mediterranean which were both held at the Food and Agriculture Organisation headquarters in Rome. A report on the Symposium and the 10th Session was submitted to government at the end of the meeting.

XV GOZO SECTION

An estimated 75% of the population in Gozo earn their living out of the soil and from the breeding of livestock.

The area of cultivable land in Gozo is about 27,000 tumoli out of which 2% is irrigated.

FRUIT DEVELOPMENT

One of the main activities of the Gozo Section is the development of fruit production.

About 5 tumoli of bitter almond seeds were sown for the propagation of fruit seedlings.

About 10,000 rootstock of different kinds of fruit trees were propagated during the year. About another 2,000 citrus seedlings were planted.

The following fruit trees were sold during the year to farmers and amateur gardeners in Malta and Gozo:

	Gozo	Malta
Peaches	2269	1550
Pears	659	1250
Plums	528	635
Apples	1232	800
Nectarines	31	320
Apricots	213	15
Cherry Plums	33	-
Kaki	25	-
Pomegranates	72	57
Figs	17	30
Black Mulberries	20	22
Loquats	108	240
Carobs	2	-
Olives	41	35
Grafted Vines	440	400
Bambinella	110	10
Bitter Almonds	6	-
Banana	1	-
Oranges	157	144
Seville Oranges	61	-
TOTAL	6056	5526

VITICULTURE & OENOLOGY

1. Wine Production

The following data were collected during this year's vintage season:

Licenced Commercial Vintners		48
Grapes Pressed		2,102 qantars
Production of wine		9,761 barrels
Production of Must		600 "
Wine shipped to Malta	(a)	15,454 "
Sale of wine in Gozo	(a)	10,264 "
Grapes sent to Malta for Wine Making		433.11 qtrs.

2. Vine Plantations

The following are the figures for vine root-stock sold to Gozo farmers during the last 5 years:

Year	No. of Vines
1965	12,680
1966	13,816
1967	11,792
1968	19,797
1969	28,500

Out of the rootstock sold for 1969, 13,500 were produced locally.

3. Government Experimental Vine Station

These vineyards, laid out in 1963, comprise 21 varieties of wine grapes and 18 varieties of table grapes.

A new system of trellising for both wine and table grapes has been established and it will serve as a demonstration to farmers. These vineyards are always properly maintained.

4. Experimental Sub-stations on Privately owned Lands

Nine sub-stations in wine growing areas in Gozo have now been established. All these stations have now been grafted and trellised and are properly looked after.

(a) includes wine made from must produced in previous years.

PUBLIC GARDENS, PLANTATIONS AND AFFORESTATION

1. Villa Rundle

These gardens covering an area of 4 acres are the only recreational grounds in Victoria.

The administration of these gardens is carried out in conjunction with the Gozo Civic Council.

A great number of ornamental and biennial flowers as well as many flowering bulbs were planted in these gardens making a wonderful display of colours especially during the spring.

The Gozo Agricultural, Industrial and Cultural Show was also held in these Gardens on the 15th August, 1969.

2. Nurseries

The two Nurseries in Gozo namely "tad-Dawwara" and "Kercem" are supplying all our departmental requirements as well as the public demand for trees and shrubs.

Very often these Nurseries are visited by public and tourists alike. Advice on the cultivation of trees and shrubs is frequently given by the staff on the spot.

During the year about 100,000 cuttings of ornamental trees and shrubs were propagated in open ground and in pots.

3. Public Plantations and Afforestation

All plantations along public roads, flower beds, playing fields and open spaces were duly attended to as regards strutting, hoeing, watering and pruning.

The total number of trees and shrubs added or replaced during the year was the following:-

Number of trees added	94
Number of trees replaced	340
Number of Shrubs added	4857
Number of Shrubs replaced	1588
	6879

These included Ficus, Tamarix, Acacia, Oleander, Morus, Casuarina, Pittosporum, Dautsia, Evonymus, Calicarpa and Ailanthus.

4. Sales

The following were the sales from public Gardens and Nurseries:-

Vegetables	7,041	rotoli
Veg. seedlings	24,659	rotoli
Flower Bouquets	276	
Flower wreaths	247	
Ornamental plants	2,217	
Sweet Pepper	410	dozen
Peaches	111	rotoli
Grapes	1,501	"
Roses	3,363	blooms
Carnations	6,363	"
Gerbera	84	"

ANIMAL HEALTH AND PRODUCTION

T.B. and Brucellosis, testings under the Scheme continued during the year. Constant advice continued to be given to farmers about precautionary measures, herd management and other livestock feeding and management.

1. Civil Abattoir

The number of livestock heads slaughtered at the Gozo Abattoir within and out of visit during the year 1969 amounted to 4,209 and 258 respectively.

2. Government Livestock Centre

The main purpose of the Centre is to provide good stud livestock and services to Gozo farmers; besides it serves as well as a demonstration to farmers.

Many farmers availed themselves of the free services of this Centre as follows:-

Swine	195
Bovines	260
Caprines	115
Rabbits	260
Artificial Insemination	127

At the end of the year the Centre had the following livestock:-

Swine	6 sows, 3boars, 11 sucklings
Bovines	1 bull
Caprines	1 billy goat
Fowls	15 ducks, 3 turkeys, 4 pheasants, 6 guinea fowls, 4 geese, 8 mullards.
Rabbits	Flemish Giant-3does, 6 bucks, 11 sucklings
	N.Z.W. - 6 does, 6 bucks, 27 sucklings
	Local - 6 does, 3 bucks, 21 sucklings

Sales from the Centre during the year were the following:

Eggs	1,841
Fresh Cheeselets	15,272
Swine	49
Rabbits	204
Bull	1
Billy goat	1
Bovines	9
Fowls	8
Milk	241 lbs.
Wool	40 rotoli

3. Artificial Insemination

Frozen semen was introduced for this service during November.

4. Veterinary Services

The following shows the work carried out during the year by the Veterinary Assistant in Gozo:

Vaccination of Swine Fever	1,192
" " " Erysepelas	883
" " " Anaemia	633
" " Fowl Pox Turkeys	399
" " " " Chickens	23,750
Vaccination Kids	1,298
Samples of Milk Taken	120
Advisory Visits: No. of Herdsmen	43
No. of Poultry Units	532

LAND AND WATER USE

1. Fertile Soil Preservation Ordinance 1935

This section did everything possible to cope with provisions under this Ordinance.

The following work has been carried out during the year:-

Month	Building Sites	Inspected Sites	Cub.yds. of Soil Removed
January	9	20	120
February	4	17	45
March	8	18	188
April	10	15	190
May	16	26	333
June	7	20	225
July	14	16	145
August	8	15	344
September	7	18	290
October	19	25	1,255
November	24	26	854
December	11	20	550
TOTAL	140	233	4,539

During year 1969 the following quantities of soil was removed to different sites for land reclamation:

a) P.W.D. 2,500 cub. yds. b) Bitmac Coy 5,000 cub.yds.
c) Gozo Industrial Centre 11,320 cub. yds.

2. Land and Crop Assessment (Act No. XVI of 1967)

The following data shows the number of assessments carried out during the year by the Abricultural Inspector:

Public Works Department	36
Lands Department	83
Gozo Civic Council	19
Malta Electricity Board	14
Water Works' Department	6

3. Agricultural Land Registration

The number of transfers and cancellations during the year amounted to 142.

EXTENSION SERVICE

Visits and Inspections by the available Staff of the Extension Service in Gozo include:

a) Inspections of glasshouses
b) Inspections of herdsmen on health, management and disease.
c) Inspections of fruit orchards and Experimental Vineyards.
d) Inspections of Poultry Units.
e) Vetting of applications under the Loans and Grants Scheme.
f) Distribution of Sorghum under the Sorghum Scheme.

LOANS AND GRANTS SCHEME

The following number of farmers benefitted from Government financial assistance during the year:

15 farmers for purchasing a Rotary Cultivator
1 farmer for construction of Pig Unit.

PLANT PROTECTION SERVICE

The following spraying services were carried out during thy year:-

Citrus trees	488 trees
Other fruit trees	145 "
Potatoes	33 tumoli
Onions	2 "
Melons	2 "
Tomatoes	2 "
Vines	4 "
Onions	1 "
Glasshouses	151 Pumps

Besides 200 fruit trees, 1,000 ornamental trees and shrubs and 10 tumoli of crop in Government lands were sprayed as well.

For experiments carried out at the Gozo Section see Chapter V.

TABLE 1

WEIGHTS AND MEASURES

1. Weights

MALTESE	ENGLISH	METRIC
1 Ratal	1.75 lbs	0.79 kg
1 Wizna	8.75 lbs	3.97 kg
1 Qantar	175.00 lbs	79.38 kg
1280 Rtal	2240.00 lbs	1016.00 kg

2. Measures of Capacity

1 mondello	0.66 gallons	3.03 litres
1 garra	2.38 gallons	10.80 litres
1 tomna	4.00 gallons	18.18 litres
1 barile	9.50 gallons	43.19 litres
1 Salma	64.00 gallons	290.88 litres

3. Measures of Length

1 Pulzier	0.86 inches	21.83 mm
1 Xiber (12 pulzier)	10.31 inches	26.19 cm
1 Qasba (8 t'ixbar)	2.29 yards	2.10 m.

4. Measures of Area

1 Qasba kwadra	5.25 sq. yards	4.39 sq. metres
1 Kejla	22.41 sq. yards	18,735 sq. metres
1 Siegh (10 kejliet)	224.10 sq. yards	187.35 sq. metres
1 tomna (6 sieghan)	0.278 acres	0.11 hectares
1 Wejba (4 tmien)	1.11 acres	0.45 hectares
1 Modd (4 wejbiet)	4.44 acres	1.80 hectares

5. Measures of Volume.

1 Xiber Kubu	0.63 cu. ft.	17.97 dm^3
1 Qasba Kuba	12.04 cu. yds	9.20 dm^3

NOTE: An acres is equivalent to 3.6 tmien

A Tomna is a square with sides 110 ft long.

A hectare is equivalent to (i) 9.1 tmien

(ii) 2.471 acres.

jgd

Farm Population and Land Distribution (1960 - 1968)

i) Farm Population

	1960/61	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68
Wholetime farmers	7,330	6,858	6,737	6,476	6,283	6,232	5,921
Part-time farmers	8,815	8,751	9,124	8,281	8,615	8,452	8,410
Farm population not engaged in farming	20,175	21,001	20,411	20,523	21,032	21,332	21,677
Children	17,191	15,779	14,741	13,549	13,282	12,433	11,640
	53,511	52,389	51,013	48,829	49,212	48,449	47,648

ii) Land Distribution

MALTA Agricultural Land	1960 Tmien	1961 Tmien	1963 Tmien	1964 Tmien	1965 Tmien	1966 Tmien	1967 Tmien	1968 Tmien
Dry	107,980	105,543	100,687	99,613	96,750	96,831	94,390	93,247
Irrigated ...	5,528	5,470	5,585	5,287	5,048	5,624	5,668	5,473
Waste	19,511	18,860	18,064	17,712	16,627	15,988	16,878	15,403
Total	133,019	129,873	124,336	122,612	118,425	118,443	116,936	114,123
GOZO								
Dry	29,121	27,866	27,642	26,626	25,781	25,507	25,400	24,702
Irrigated ...	741	689	624	560	533	545	571	523
Waste	1,845	1,757	1,953	2,037	1,821	2,079	1,730	1,949
Total	31,707	30,312	30,219	29,223	28,135	28,131	27,701	27,174
TOTAL Malta & Gozo	164,726	160,185	154,555	151,835	146,560	146,574	144,637	141,297

TABLE 2

EXTERNAL TRADE OF AGRICULTURAL PRODUCTS

(in thousands of Maltese Pound)

	1960		1961		1962		1963		1964		1965		1966		1967		1968		1969	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
LIVE ANIMALS	497	–	511	–	497	1	524	24	538	5	443	11	563	29	616	20	536	56	550	29
MEAT AND MEAT PREPARATIONS	1,172	–	1,235	–	1,089	3	1,240	5	1,489	3	1,310	1	1,334	9	1,828	106	2,244	599	2,770	815
DAIRY PRODUCTS EGGS AND HONEY	1,574	3	1,512	3	1,443	4	1,379	16	1,347	14	1,378	21	1,465	45	1,350	17	1,601	26	1,554	8
FISH AND FISH PREPERATIONS	259	–	293	–	242	–	320	–	285	–	287	–	309	–	381	1	381	6	448	1
CEREALS & CEREALS PREPARATIONS	2,350	2	2,356	3	2,309	12	2,687	15	2,763	15	2,552	20	2,773	19	2,878	28	3,202	55	3,540	62
FRUITS & VEGETABLES	2,163	453	1,874	456	1,889	456	1,663	565	1,881	322	1,551	429	1,952	656	1,680	482	1,934	697	2,243	658
WINE	63	50	69	56	63	149	62	241	73	300	60	300	62	335	84	311	147	369	131	255
HIDES, SKINS, etc.	–	49	–	60	–	41	–	53	–	35	–	40	–	37	7	38	42	48	76	45
FEEDING STUFFS FOR ANIMALS	501	–	568	–	595	1	517	2	610	2	815	2	822	10	717	–	875	2	1,022	2
ANIMAL AND VEGETABLE OIL	279	103	338	134	24	4	315	178	498	348	487	255	331	53	326	16	387	141	208	185
FLOWERS, & SEEDS FOLIAGE, etc	15	63	81	87	53	135	41	207	36	195	51	229	47	267	18	303	75	337	44	244
TOTALS	£8,873	£723	£8,837	£799	£8,204	£806	£8,748	£1,306	£9,520	£1,239	£8,934	£1,308	£9,658	£1,460	£9,885	£1,322	£11,424	£2,336	£12,586	£2,304

TABLE 3

Imports of Seed Potatoes

Year	Arran Banner	Alpha	Craigs Royal	Pentland Dell	Total
	TONS				
1964	2,503	1,551	100	-	4,154
1965	1,696	1,127	50	½	2,873½
1966	1,339	2,180	25	-	3,544
1967	2,050	1,320	15	5	3,390
1968	1,850	1,700	90	110	3,750
1969	2,040	1,550	30	30	3,650
Total	11,478	9,428	310	145½	21,361½

TABLE 4

Export of Spring Potatoes 1969

Date	Destination	Quantity		
		Tons	Cwts.	Qrs.
3.4.69	United Kingdom	8	15	-
5.4.69	Liverpool	25	-	-
5.4.69	Rotterdam	30	-	-
16.4.69	United Kingdom	819	11	2
19.4.69	Rotterdam	525	-	-
19.4.69	Leith	450	15	-
20.4.69	Liverpool	746	2	-
21.4.69	Felixtone	450	-	-
22.4.69	Rotterdam	732	10	-
23.4.69	United Kingdom	400	-	-
23.4.69	United Kingdom	776	5	-
24.4.69	Rotterdam	305	-	-
24.4.69	United Kingdom	875	-	-
29.4.69	Leith	758	12	1
29.4.69	United Kingdom	250	-	-
30.4.69	Rotterdam	600	-	-
30.4.69	Rotterdam	300	-	-
2.5.69	Rotterdam	533	6	-
3.5.69	United Kingdom	850	-	-
6.5.69	United Kingdom	603	14	-
6.5.69	Amsterdam	350	-	-
8.5.69	Rotterdam	606	10	-
8.5.69	Rotterdam	450	-	-
13.5.69	United Kingdom	389	18	-
14.5.69	Holland	300	-	-
15.5.69	United Kingdom	1,095	-	-
16.5.69	Rotterdam	523	8	-
20.5.69	Rotterdam	83	13	-
	Total	13,838	9	-

Holland	- 5,339 tons	7 cwts
United Kingdom	- 8,498 tons	13 cwts
	13,838 tons.	0 cwts.

No of cases 5,177

Export of Dry Onions 1969

Date	Destination	Quantity		
		Tons	Cwts.	Qrs.
18.6.69	United Kingdom	700	-	-
23.6.69	United Kingdom	75	-	-
24.6.69	Glasgow	162	10	-
28.6.69	United Kingdom	172	10	-
28.6.69	United Kingdom	500	-	-
30.6.69	Rotterdam	150	-	-
2.7.69	United Kingdom	650	-	-
5.7.69	Holland	85	18	-
		2,446	18	-

United Kingdom	2,210 tons	0 cwts
Holland	236 tons	18 cwts
	2,446 tons	18 cwts

SALES THROUGH PITKALI MARKETS - VEGETABLES

(supervised by officials of the Department)

VEGETABLES	1967		1968		1969	
	WEIGHT Rtal	VALUE £	WEIGHT Rtal	VALUE £	WEIGHT Rtal	VALUE £
Artichokes (G)	909,977	9,336	795,867	13,531	780,082	12,906
Artichokes (J)	90,008	2,207	75,055	2,609	66,086	3,908
Beans Broad	606,648	16,829	622,045	11,135	775,238	17,729
Beans French	83,154	4,888	79,412	5,028	63,714	7,352
Beetroot (Unt.)	103,411	1,769	176,715	2,195	205,147	3,011
Bellpepper	197,591	7,355	211,645	7,671	219,974	10,800
Broccoli	2,752	93	5,451	144	4,452	169
Brussels Sprouts	6,482	1,193	7,617	4,135	10,696	1,750
Cabbages	1,878,737	32,632	2,394,783	29,833	2,301,970	39,941
Carrots	14,243	146	12,148	227	18,469	340
Carrots (Unt.)	1,119,791	14,957	1,169,700	16,567	1,333,737	22,777
Cauliflowers (T)	1,564,696	24,516	1,804,769	11,836	2,474,797	29,947
Celery	425,761	6,174	404,825	6,139	448,927	7,669
Centenary	2,690	45	530	15	302	9
Chickpeas	52,523	608	28,057	416	19,344	251
Cucumber	128,972	5,531	127,993	6,148	126,457	10,465
Eggplant	228,289	4,569	230,672	5,494	202,144	7,589
Endive	133,752	1,379	147,978	1,724	179,311	2,521
Garlic Dry	27,094	2,761	72,783	2,485	37,191	674
Garlic Green	180,961	6,101	176,970	7,200	160,177	1,619
Gourds	214,284	2,962	165,759	3,235	177,766	5,734
Fennel	205	3	55	2	265	8
Kohlrabi	1,375,286	18,044	1,250,277	17,538	1,383,267	21,476
Leeks	8,786	119	12,683	206	15,937	261
Lettuce	914,762	50,825	933,625	22,399	1,063,357	32,122
Marrows Long	398,094	4,313	274,938	7,821	239,320	8,249
Marrows Vegetable	1,254,324	44,345	1,261,246	35,154	1,011,405	62,291
Mint Herbs	1,116	26	784	15	116	27
Onions Dry	783,691	24,359	969,481	12,907	1,157,989	26,636
Onions Green	345,331	5,099	536,526	5,612	586,027	8,166
Onions Pickles	-	-	5,060	77	103	2
Parsley	61,985	1,852	78,170	2,099	81,076	2,324
Potatoes Spring	4,485,187	88,127	4,558,057	94,432	2,707,225	89,077
Potatoes Winter	2,394,199	62,201	2,280,426	65,995	2,846,353	59,433
Pumpkins	833,379	21,731	991,155	18,795	730,522	33,985
Peas	188,732	9,300	225,826	9,049	195,594	11,989
Radishes	7,012	237	5,525	130	8,274	255
Seakle Beet	422	5	305	6	148	3
Spinach	274,301	6,080	248,294	6,336	296,420	5,728
Tomatoes Eng.	597,908	48,896	619,768	21,500	688,564	69,322
Tomatoes R.	1,197,790	24,994	995,730	21,948	1,192,400	32,148
Tomatoes O.	1,074,855	20,605	1,082,330	22,457	711,579	20,756
Turnips	89	1	42	1	236	4
Cauliflowers (Unt)	2,001,854	28,241	3,799,449	35,651	2,283,972	28,315
		£605,454		£537,897		£694,375

SALES THROUGH PITAKLI MARKETS - FRUITS

(supervised by officials of the Department)

FRUITS	1967		1968		1969	
	WEIGHT Rtal	VALUE £	WEIGHT Rtal	VALUE £	WEIGHT Rtal	VALUE £
Apples	273,418	12,097	192,062	7,780	142,903	12,366
Apricots	1,321	123	4,209	415	1,881	350
Bambinella	28,652	3,102	40,789	832	13,244	2,525
Banana (Heads)	1,615	26	559	9	115	3
Blackberries	5,207	323	5,032	309	5,615	470
Cherries	209	64	217	61	144	117
Figs Dry	3,536	119	10,698	260	1,111	39
Figs Early	191,204	6,239	259,686	5,728	247,521	10,892
Figs Late	58,197	1,964	84,492	1,921	60,154	2,641
Grapes	572,396	22,210	467,619	22,438	354,844	19,943
Grapefruit	78	12	64	8	140	4
Lemon (Dozens)	90,783	6,862	97,297	9,859	71,696	11,319
Lemons Sweet	189	10	370	16	238	13
Medlars	23,883	892	18,337	591	15,498	793
Melons Sugar	522,209	15,802	679,044	12,592	344,950	19,617
Melons Water	294,979	8,933	399,293	8,669	140,166	6,857
Melons Winter	296,053	7,137	369,743	7,008	65,750	2,872
Mulberries	1,593	48	810	26	1,388	38
Nectarines	1,220	76	2,319	175	240	35
Olives	3,138	143	505	22	1,410	67
Oranges (Dozens)	48,170	5,580	52,308	6,448	34,495	5,213
Oranges Sweet (Dozens)	11,616	1,645	11,471	1,786	9,287	1,750
Peaches	828,003	37,553	706,841	32,809	297,878	30,852
Pears	32,678	2,079	67,520	3,249	15,501	1,520
Pears Prickly	33,390	241	25,980	255	66,906	685
Plums	72,631	5,744	38,736	3,389	39,310	5,073
Plums Cherry	476,748	11,642	209,770	11,402	443,919	18,645
Pomegranates	80,406	1,675	65,896	7,621	58,088	1,504
Prunes	434	26	227	11	227	21
Strawberries Eng.	86,241	14,774	47,857	9,744	80,591	20,141
Strawberries Local.	1,041	553	298	208	150	146
Tangerines (Dozens)	9,609	1,159	11,246	1,279	11,391	1,407
		£168,853		£150,936		£177,918

Landings of Fresh Fish by Local Boats

1959 - 1969

Year	Weight in Tons	Wholesale value in £
1959	1,040	200,729
1960	1,217	226,643
1961	1,350	236,601
1962	1,317	248,770
1963	1,491	283,206
1964	1,348	324,094
1965	1,279	334,351
1966	1,276	319,454
1967	1,463	346,009
1968	1,180	340,950
1969	1,138	320,263

AVAILABILITY OF FRESH FISH - 1968/69

YEAR	(LOCAL) QUANTITY RTAL	WHOLESALE VALUE £	RETAIL VALUE £	AVERAGE RET. PRICE PER RATAL	(IMPORTED) QUANTITY RTAL	WHOLESALE VALUE £	RETAIL VALUE £	AVERAGE RET.PRICE PER RATAL	TOTAL QUANTITY
1968									
January	67,187	14,777	18,642	5/6	-	-	-	-	67,187
February	77,403	17,528	22,308	5/9	1,770	457	620	7/-	79,173
March	96,090	20,089	24,942	5/2	634	168	231	7/4	96,724
April	84,008	19,209	27,708	6/7	-	-	-	-	84,008
May	78,596	19,494	24,587	6/5	-	-	-	-	78,596
June	101,070	20,022	26,605	5/3	3,176	1,439	1,677	10/7	104,246
July	145,166	34,252	49,505	6/10	372	118	155	8/4	145,538
August	96,809	26,834	32,956	6/10	4,228	1,615	1,931	9/1	101,037
September	285,149	76,216	93,319	6/6	-	-	-	-	285,149
October	371,868	65,962	88,593	4/9	640	190	229	7/2	372,508
November	64,590	16,177	20,145	6/3	3,992	1,294	1,697	8/6	68,582
December	47,098	10,390	13,230	5/7	500	205	250	10/-	47,598
	1,515,034	£340,950	£442,540	-	15,312	5,486	6,790	-	1,530,346
1969									
January	102,681	19,595	25,910	5/1	1,500	334	469	6/3	104,181
February	66,580	14,288	18,271	5/6	17,320	3,245	4,546	5/3	83,900
March	91,748	17,936	23,924	5/3	20,224	3,825	5,562	5/6	111,972
April	87,224	18,178	23,664	5/5	12,133	2,499	3,539	5/10	99,357
May	132,253	22,424	31,128	4/9	594	293	326	11/-	132,847
June	116,778	19,216	27,651	4/9	3,053	984	1,272	8/4	119,831
July	169,116	30,577	41,968	5/-	9,141	2,572	3,390	7/5	178,257
August	107,273	19,964	27,266	5/1	2,887	989	1,300	9/-	110,160
September	136,391	35,375	44,574	6/8	5,667	1,506	1,983	7/-	142,058
October	227,918	67,492	81,481	7/2	8,767	2,556	3,288	7/6	236,685
November	150,618	41,613	50,771	6/9	650	250	293	9/-	151,268
December	68,121	13,605	17,093	5/-	1,770	316	472	5/4	69,891
TOTAL	1,456,701	£320,263	£413,701	-	83,706	£19,369	£26,440	-	1,540,407

TABLE 10

FISH CAUGHT DURING 1969 (IN ROTOLI)

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
ACCOLA	-	-	-	-	560	736	1,182	857	-	-	-	-	3,335
ARZNELL/MUNQARA	7,842	12,136	26,354	20,720	16,913	-	-	-	-	1,430	-	2,794	88,189
BOLL/HAM/RAJ	1,771	1,027	1,206	1,015	822	618	1,175	240	-	-	-	550	8,424
CERNA	515	322	-	544	2,484	1,271	3,010	1,226	724	648	1,161	-	11,905
DEBTICI	823	388	387	430	1,358	1,704	1,670	766	650	982	727	487	10,372
DOTT/HANZIR	1,363	1,576	2,000	2,110	5,166	3,460	7,451	2,192	436	426	483	594	27,257
FANFRI	-	-	-	-	-	-	-	466	28,621	59,064	21,730	-	109,881
GALLINI	913	815	5,180	3,346	1,099	-	-	-	-	-	-	-	11,353
GAMBLI	1,446	2,100	5,030	8,140	3,860	5,435	3,949	4,197	2,084	4,614	2,728	736	44,319
GRINGU	1,863	1,136	1,261	1,069	1,105	1,705	2,482	961	-	-	379	805	12,766
GRIEWEL	-	-	558	-	-	-	-	-	-	1,319	-	-	1,877
HUTA KAHLA	2,222	742	1,591	756	723	302	537	-	-	-	-	-	6,873
KAHLI	724	808	870	755	1,837	1,531	2,106	921	589	-	267	334	10,742
KAVALLI	-	-	11,671	27,195	19,708	16,308	16,812	19,954	24,561	4,875	-	-	141,084
KLAMARI	1,036	1,006	1,028	-	617	257	-	-	-	-	-	538	4,482
LACCI	-	-	-	-	4,950	5,131	4,060	3,361	-	-	-	-	17,502
LAMPUKI	-	-	-	-	-	-	-	347	40,794	125,250	85,402	452	252,245
MAKKU	-	-	-	-	-	2,274	1,684	4,503	3,077	1,415	-	-	12,953
MAZZOLA	5,304	1,097	3,301	3,929	4,895	5,028	5,234	2,930	874	829	-	642	34,063
MERLUZZI	-	-	-	-	-	808	-	-	-	-	-	-	808
MULETT	662	573	514	428	-	936	-	396	-	-	-	524	4,033
PAGELL	1,506	1,052	1,234	672	674	710	838	379	-	-	502	880	8,477
PAGRU	399	-	452	340	696	322	1,149	1,200	-	-	-	-	4,558
PIXXIPLAMTU	-	-	-	433	882	-	-	-	-	-	-	1,282	2,597
PIXXISPAD	-	-	-	-	1,493	2,498	23,927	7,405	-	248	-	-	35,571
QARNIT	2,948	1,731	1,266	846	1,617	1,211	754	585	361	2,254	3,797	1,915	19,285
SARGU	918	720	432	704	890	525	1,050	384	-	-	481	426	6,530
SAWRELL	37,039	8,537	7,609	3,762	35,671	47,461	72,864	33,936	21,741	15,758	11,266	25,132	320,876
SIRRAN	-	1,255	1,210	557	421	-	-	-	-	-	-	-	3,443
SKORFON	-	-	-	-	554	-	454	-	-	-	-	-	1,008
TONN	1,904	3,200	1,200	-	656	-	1,005	-	-	-	457	1,137	9,559
TRILL	1,194	1,110	1,208	503	-	545	-	490	-	-	-	-	5,050
TUMBRELL	432	-	1,176	2,834	764	-	-	-	-	-	-	3,440	8,646
VOPI	26,393	21,976	9,314	2,690	14,453	12,890	11,748	15,245	9,707	7,918	15,856	24,150	172,342
XILEP	1,582	281	732	-	997	962	913	717	-	-	920	394	7,498
ZAGHRUN	-	1,033	1,585	1,034	2,813	508	-	2,456	295	-	-	-	9,724
HUT IEHOR	1,882	1,959	3,349	2,412	3,575	1,641	2,962	1,159	1,877	2,318	3,030	909	27,073
	102,681	66,580	91,748	87,224	132,253	116,778	169,116	107,273	136,391	227,918	150,618	68,121	1,456,701

TABLE 11

Yearly Enumeration of Livestock 1957 - 1968

YEAR	CAPRINES		OVINES		BOVINES		SWINE		EQUINES		POULTRY & RABBITS	
	MALTA	GOZO	MALTA	GOZO	MALTA	GOZO	MALTA	GOZO	MALTA	GOZO	MALTA	GOZO
1957	25,611	13,726	9,204	5,614	7,066	2,661	10,493	2,805	4,955	1,825	244,473	144,042
1958	23,743	13,201	9,233	5,778	7,626	2,172	12,381	3,981	4,748	1,827	252,588	157,307
1959	22,625	13,246	8,649	5,616	7,429	2,107	12,094	2,701	4,587	1,757	249,502	131,840
1960	21,010	13,678	7,909	5,107	7,206	2,172	11,217	2,829	4,422	1,698	264,515	132,513
1961	18,587	12,425	7,190	4,413	6,282	1,809	12,507	3,885	4,290	1,603	264,320	148,983
1963	17,225	13,083	6,424	4,538	6,566	2,013	12,414	3,343	3,978	1,619	280,353	144,283
1964	16,438	12,741	6,518	4,709	6,001	1,986	10,428	2,990	3,833	1,500	322,528	119,769
1965	14,818	11,164	6,419	4,066	5,384	1,874	12,217	2,949	3,582	1,362	355,186	140,383
1966	13,894	10,909	6,205	4,486	6,340	1,797	19,787	3,554	3,464	1,345	305,188	100,814
1967	12,978	10,452	5,694	4,268	~~5,425~~ 6679	~~2,009~~ 2170	20,277	3,163	3,373	1,338	329,785	89,369
1968	10,743	9,421	5,183	3,851	7,746	2,104	20,271	3,080	3,210	1,216	604,834	119,8~~38~~ 40

TABLE 12

STOCK OF IMPORTED CATTLE DURING 1969

Month	Imported Bullocks	Slaughtered			Balance at end of month
		Malta	Gozo	Total	
Balance on 1st January, 1969					1,566
January	554	613	27	640	1,480
February	-	488	19	507	973
March	1,264	514	20	534	1,703
April	648	508	20	528	1,823
May	840	560	12	572	2,091
June	922	609	13	622	2,391
July	254	602	22	624	2,021
August	834	611	30	641	2,214
September	674	596	24	620	2,268
October	892	668	24	692	2,468
November	711	517	23	540	2,639
December	278	592	20	612	2,305

Recapitulation:

Stock in hand on 1st January, 1969	1,566
Imported during 1969	7,871
	9,437
Slaughtered during, 1969	7,132
Balance on 31st December, 1969	2,305

TABLE 13

(MALTA)

NUMBER AND WEIGHT IN ROTOLI OF ANIMALS SLAUGHTERED DURING 1969

MONTH	CATTLE		PIGS		SHEEP		LAMBS		GOATS		KIDS		EQUINES		TOTALS	
	No.	Rots.	No.	Rots.	No.	Rots.	No.	Rots.	No.	Rots.	No.	Rots.	No.	Rots.	No.	Rots.
JANUARY	902	283,585	3,373	297,574	324	13,120	479	4,430	234	6,034	159	712	73	16,280	5,544	628,735
FEBRUARY	731	222,224	3,067	265,082	260	10,974	271	2,550	203	4,983	91	423	65	14,405	4,688	521,641
MARCH	785	253,819	3,303	299,233	304	12,419	144	1,371	223	5,415	181	801	75	16,813	5,015	589,871
APRIL	781	253,646	3,027	266,679	311	13,040	96	959	237	5,969	428	2,092	73	16,499	4,953	558,884
MAY	809	239,471	3,506	305,453	340	13,617	77	746	257	6,314	264	1,286	74	16,010	5,327	582,897
JUNE	916	233,513	3,522	309,750	287	11,309	33	310	269	6,675	105	494	68	14,530	5,100	581,581
JULY	872	261,391	3,543	305,319	259	9,826	36	345	295	7,140	70	338	67	14,452	5,141	598,811
AUGUST	859	259,200	3,698	321,838	302	11,987	50	463	268	6,219	63	334	62	13,845	5,302	613,886
SEPTEMBER	846	260,151	3,665	323,743	335	13,427	237	2,212	259	6,511	73	327	62	13,182	5,476	619,553
OCTOBER	946	292,686	4,614	400,149	395	15,715	330	13,090	1,403	7,431	45	209	74	15,040	7,777	744,580
NOVEMBER	754	226,663	3,834	340,572	283	12,324	931	8,552	236	5,621	37	189	64	13,495	6,142	607,419
DECEMBER	862	264,256	5,307	404,110	333	13,057	799	6,882	350	8,397	34	161	77	16,290	7,672	773,143
TOTALS	9,933	3,062,818	44,459	3,881,502	3,735	150,815	3,333	41,910	4,233	76,749	1,550	7,366	837	180,841	68,137	7,412,001
(GOZO)																
JANUARY	67	23,432	254	24,126	15	460	26	224	6	112	19	10	-	-	387	48,364
FEBRUARY	55	50,267	231	22,086	15	480	32	264	4	106	-	-	-	-	337	73,203
MARCH	52	18,286	215	20,770	17	510	17	146	9	199	25	144	1	180	336	40,235
APRIL	50	17,555	236	22,200	12	372	5	40	8	188	72	383	-	-	383	40,748
MAY	56	20,540	273	27,090	6	162	-	-	3	74	36	195	-	-	374	48,061
JUNE	48	17,144	262	26,390	3	94	-	-	4	96	1	5	-	-	318	43,729
JULY	59	20,812	239	23,230	2	58	-	-	1	20	-	-	-	-	301	44,120
AUGUST	69	23,668	278	26,360	6	178	1	8	1	24	3	15	-	-	358	50,253
SEPTEMBER	69	23,282	218	18,752	22	682	9	72	-	-	-	-	-	-	318	42,788
OCTOBER	74	24,804	288	25,646	16	454	110	844	7	174	-	-	-	-	495	51,922
NOVEMBER	64	21,835	260	22,196	11	270	111	750	9	168	-	-	-	-	455	45,219
DECEMBER	71	25,198	361	31,532	10	274	59	473	6	134	-	-	3	746	510	58,357
TOTALS	734	286,833	3,115	290,378	135	3,994	370	2,821	58	1,295	156	752	4	926	4,572	586,999

Vaccination of Pigs and Inoculations of Poultry during 1969

M A L T A

MONTH	POULTRY		SWINE	
	Fowl Pest	Fowl Pox	Swine Erysipelas	Swine Fever
January	-	3624	1767	556
February	-	3344	1268	489
March	-	5943	1855	627
April	-	1083	2133	671
May	970	4475	1354	156
June	1486	3653	1199	932
July	832	5472	962	773
August	955	4670	888	477
September	818	4388	1041	399
October	1070	2819	788	495
November	300	2516	877	227
December	1076	3312	849	567
TOTALS	7507	45299	14981	6369
G O Z O				
January	-	1600	265	68
February	-	2500	104	127
March	-	8000	210	78
April	-	5650	324	156
May	-	4000	50	12
June	-	-	15	31
July	-	-	25	11
August	-	-	5	71
September	-	-	27	35
October	-	500	91	10
November	-	1500	61	191
December	-	-	15	93
TOTALS	-	23750	1192	883

TABLE 15

Diseases and other causes of unsoundness of meat during 1969

Disease	Cattle	Pigs	Sheep	Goats	Lambs	Kids	Equines	TOTAL
Emaciation	4	-	-	2	-	-	-	6
Putrefaction	5	13	-	-	-	-	-	18
Septicaemia	6	6	4	3	-	-	-	19
TOTALS	15	19	4	5	-	-	-	43

TABLE 16

ORDINARY AND SPECIAL - EXPENDITURE 1964 - 1970

i) ORDINARY EXPENDITURE 1964/70

	A. PERSONAL EMOLUMENTS						B. OTHER CHARGES					
	ACTUAL 1964/65	ACTUAL 1965/66	ACTUAL 1966/67	ACTUAL 1967/68	ACTUAL 1968/69	ACTUAL 1969/70	ACTUAL 1964/65	ACTUAL 1965/66	ACTUAL 1966/67	ACTUAL 1967/68	ACTUAL 1968/69	ACTUAL 1969/70
Office	19,965	20,932	20,635	17,141	27,922	32,237	-	-	-	-	-	-
Advisory Service	6,816	6,814	6,797	6,016	7,159	9,618	1,381	1,791	1,831	1,909	1,898	1,948
Government Farm	5,620	5,453	4,776	5,040	6,654	8,149	36,100	38,266	37,657	37,824	39,236	39,970
Gardens, Plantations and Afforestations.	31,148	31,881	30,138	32,440	33,674	36,970	27,342	29,437	32,596	33,682	36,699	39,474
Plant Pathology Viticulture and Oenology	2,554	1,871	1,573	1,249	1,370	2,302	11,752	11,459	12,645	11,276	12,829	13,178
Marketing	5,828	6,400	6,355	6,280	6,961	7,078	1,677	1,697	1,748	1,599	2,006	2,139
Veterinary Service	17,723	17,880	18,235	19,052	23,263	26,450	2,765	7,176	6,787	7,076	9,446	23,930
Fisheries	13,431	13,668	13,305	14,264	16,272	19,680	17,347	20,935	21,232	18,165	21,634	22,161
General Services	-	-	-	-	-	-	13,956	15,019	16,019	16,803	20,841	30,013
Subsidies	-	-	-	-	-	-	86,857	78,158	100,355	79,254	97,679	101,511
	103,085	104,899	101,814	101,482	123,295	144,484	204,177	203,938	230,870	207,598	242,267	274,324

TABLE 17

ii) SPECIAL EXPENDITURE 1964/70

ACTUAL 1964/65

International Congress on Brucellosis	:	£356
Training of a Veterinary Surgeon	:	70
Assistance given to M.V. Hannibal	:	810
		£1,236

ACTUAL 1965/66

Purchase of Livestock	:	877
Training of a Veterinary Surgeon	:	123
Grants to Fishermen		18,290
Repairs to Public Gardens	:	997
Electric Unit for Gozo Abattoir	:	49
Purchase of a duplicator	:	82
Adaptation Works of Premises at it-Tokk Gozo		467
		£21,885

ACTUAL 1966-67

Purchase of livestock for Government Farm	:	548
Repairs to Public Gardens	:	4,981
Expenses in connection with 2nd Session of the Working Party of the Water Resources and Irrigation of European Commission on Agriculture	:	521
Repairs to Elec. Installation at Civil Abattoir	:	5,983
Installation of an electric Ref. Plant at Civil Abattoir	:	683
Centralization of nurseries at Tal-Kmand	:	144
Purchase of Two Typewriters	:	63
Provision for wire enclosure at Livestock Centre, Gozo	:	200
		13,123

ACTUAL 1967/68

Purchase of Livestock for Government Farm	:	1,844
Repairs to Public Gardens	:	4,960
Expenses in connection with Control of Stray Dogs	:	-
Expenses in connection with Research	:	300
Repairs to elec. installation in Civil Abattoir, Malta	:	630
Installation of an Elec. Refrig. at Civil Abattoir, Gozo	:	167
Centralization of nurseries at Tal-Kmand	:	142
Purchase of a Rotovator	:	-
Purchase of a bowser	:	2,175
Replacement of a motor scooter	:	-
Purchase of a manual control panel	:	-
Construction of an animal shed at the Civil Abattoir	:	1,706
		£11,424

ACTUAL 1968/69

Purchase of Livestock for Government Farm.	:	£2,933
Repairs to Public Gardens	:	8,011
Expenses in connection with Stray Dogs.	:	553
Centralization of Nurseris at tal-Kmand	:	-
Purchase of 1 bowser	:	725
Construction of shed at Civil Abattoir	:	383
Cold room at Luqa Airport	:	391
Replacement of an estate car	:	514
		£13,510

ACTUAL 1969/70

Purchase of Livestock for Government Farm.	:	2,857
Repairs to Public Gardens	:	10,131
Expenses in connection with stray dogs.		756
Centralization of Nusseries at tal-Kmand	:	-
Cold Room at Luqa Airport	:	2,352
Purchase of flaying equipment		780
Purchase of 4 typewriters	:	182
Replacement of vehicles	:	-
Purchase of 1 truck - Gozo	:	-
Centralization of Nurseries - Gozo	:	2,184
Purchase of 1 Rotary Cultivator for Gozo	:	-
Purchase of incinerator for Gozo	:	200
Expenses in connection with German Fertilizer	:	422
Supply of Rotary cultivator	:	30
Replacement of Estate Car.	:	350
		£20,244

iii) E. CO-OPERATIVES - 1964/70

	ACTUAL 1964/65	ACTUAL 1965/66	ACTUAL 1966/67	ACTUAL 1967/68	ACTUAL 1968/69	ACTUAL 1969/70
Personal Emoluments :	£2,782	£2,381	£2,356	£2,241	£2,581	£2,906
Other Charges :	7,023	6,996	6,368	7,080	6,859	8,090
Special Expenditure :	-	-	-	-	-	-
	£9,805	£9,357	£8,724	£9,321	£9,440	£10,996

iv) F. PITKALI MARKETS - 1964/70

Personal Emoluments :	£19,113	£20,179	£20,643	£20,260	£24,277	£25,315
Other Charges :	3,869	3,185	3,938	3,919	4,518	5,563
Special Expenditure :	-	-	** 2,000	-	-	-
	£22,982	£23,364	£26,581	£24,179	£28,795	£30,878

** Grant to the Gozo and Agricultural Producers Co-operative Society Limited.

CAPITAL EXPENDITURE - AGRICULTURE AND FISHERIES

Details of Expenditure	PLAN ESTIMATES 1964/69	ACTUAL EXPENDITURE 1964/65	ACTUAL EXPENDITURE 1965/66	ACTUAL EXPENDITURE 1966/67	ACTUAL EXPENDITURE 1967/68	ACTUAL EXPENDITURE 1968/69
1. Cattle Disease Eradication Scheme	54,385	23,450	14,388	10,379	7,630	11,789
2. Animal Vaccination Scheme	1,056	-	941	-	-	-
3. Incentive Grants to Farmers	70,090	8,985	2,857	6,747	8,697	8,855
4. Expenses in connection with Experts	39,608	2,915	-	1,077	3,403	2,649
5. Training of Personnel Abroad	32,705	1,986	1,884	2,889	2,755	6,611
6. Adopted Farms	2,945	20	677	1,338	217	-
7. Grants to Farmers	100,000	13,707	30,038	38,055	25,965	25,510
8. Public Gardens, Plantations and Afforestation	68,243	10,000	14,385	10,427	13,745	16,385
9. Improvements to Public Gardens	8,691	8,515	157	20	-	-
10. Modernisation of Civil Abattoir	604	118	403	-	-	-
11. Cattle Quarantine Station	42,200	847	15,212	13,862	11,998	2,375
12. Equipping and Staffing Research ...ratory	53,317	827	737	2,282	6,724	3,589
13. General Development of Horticulture	211,332	3,960	30,094	49,761	55,842	52,124
14. Fruit Planting Incentive Grants	12,659	596	1,248	1,409	2,777	1,600
15. Development of Viticulture	17,824	1,223	4,608	3,206	3,733	3,907
16. Mobile Steam Sterilizing Units	11,606	-	-	-	1,012	1,600
17. Agricultural Produce Inspection Shed	24,792	-	-	10,891	2,620	-
18. Assistance to Co-operatives (Grants)	30,000	-	-	1,575	7,513	4,115
19. Improvements to Farmhouses (Grants)	23,000	-	3,436	2,811	7,996	8,445
20. Establishment of Agricultural Laboratories	12,132	879	1,335	4,204	4,120	1,988
21. Eradication of Swine Diseases	15,000	-	1,447	1,829	2,494	1,864
22. Purchase and Adaptation of R.N. Abattoir	2,000	-	40	969	-	-
23. Loans to Farmers	150,000	20,049	44,397	55,219	38,397	37,392
24. Assistance to Co-operative (Loans)	45,000	-	-	2,013	9,005	8,503
25. Improvements to Farmers (Loans)	34,500	-	5,035	4,196	11,907	12,520
26. Equipping and Staffing Diagnostic Laboratory	40,177	-	2,964	6,042	6,859	4,701
27. Central Markets	136,833	-	-	-	-	20,991
28. Modernisation of Civil Abattoir	-	-	-	-	-	22,051
29. Development of the Pig Breeding Industry	19,500	-	174	6,518	7,072	3,176
30. Equipment for Crop Protection Spraying Service	1,769	1,769	-	-	-	-
	£1,261,968	£99,846	£176,457	£237,659	£232,957	£262,740

Fisheries: continued overleaf .....

Details of Expenditure	PLAN ESTIMATE 1964/69	ACTUAL EXPENDITURE 1964/65	ACTUAL EXPENDITURE 1965/66	ACTUAL EXPENDITURE 1966/67	ACTUAL EXPENDITURE 1967/68	ACTUAL EXPENDITURE 1968/69
FISHERIES:						
31. Grants to Fishermen :	34,000	5,658	8,361	7,039	16,528	6,724
32. Improvements at Marsaxlokk ;	37,980	7,627	16,034	13,291	-	-
33. Provisions of 2 winches at Marsaxlokk and Wied iz-Zurrieq	2,907	-	749	-	-	789
34. Construction of Moles :	79,000	4,977	5,620	-	25,989	20,611
35. Extension of Moles at Wied iz-Zurrieq :	11,605	326	1,395	1,579	1,330	5,991
36. Fishing Research :	15,498	-	309	623	335	4,453
37. Sundry Works at Fishing Centres :	25,320	5,680	9,741	6,608	3,715	2,880
38. Loans to Fishermen :	51,000	5,977	11,665	10,789	26,002	11,267
39. Dredging of Inner part of Marsaxlokk :	47,475	-	14	33,160	-	-
40. Building of Dwelling Units :	64,988	-	8,753	16,102	9,440	9,688
41. Expropriation of Lands and Old Fishponds at Marsaxlok.	15,020	15,000	20	-	-	-
TOTAL FISHERIES	384,793	45,245	62,661	89,191	83,339	62,403
TOTAL AGRICULTURE	1,261,968	99,846	176,457	237,659	232,957	262,740
TOTAL EXPENDITURE : : :	£1,646,761	£145,091	£239,118	£326,850	£316,296	£325,143

TABLE 18 Continued

REVENUE 1964 - 70 (Table 19)

	ACTUAL 1964/65	ACTUAL 1965/66	ACTUAL 1966/67	ACTUAL 1967/68	ACTUAL 1968/69	ACTUAL 1969/70
VII FEES OF OFFICE AND REIMBURSEMENTS						
A. Fees of Office						
Fisheries						
24: Fees for Fish-hawker Arm Badges	15	12	7	9	-	-
25: Permits and Licences	38	40	60	42	46	53
Veterinary Services						
33: Abattoir Fees	15,105	15,078	16,124	16,889	17,656	20,126
Agriculture						
34: Licences, certificates, etc.	341	392	477	558	1,174	479
	15,499	15,522	16,678	17,498	18,876	20,658
B. REIMBURSEMENT						
(Fisheries)						
66: Sale of Fishing Equipment	6,998	7,569	8,855	8,966	8,255	10,532
67: Sale of Fish from experimtenal fishing vessel	-	-	-	-	-	-
68: Commission on sales of imported fish	-	-	-	-	245	327
Agriculture						
88: Sale of Vegetables from Govt. Farm	2,034	2,728	3,913	4,193	2,774	2,698
89: Sale of Livestock from Govt. Farm	3,986	3,200	3,617	3,645	3,997	1,604
90: Sale of Dairy Produce	2,858	2,873	3,616	3,328	5,374	5,141
91: Sale of vine rootling from Vine Nurseries	-	-	-	-	600	-
92: Sale of trees,plants from public plant	1,280	1,934	1,940	2,439	1,920	2,474
93: Sale of fruit from S. Anton Gardens	643	654	876	740	893	541
94: Sale of fruit from Buskett Gardens	2,171	1,758	2,516	1,435	2,358	1,315
95: Sale of fruit from dar L-iljuni Gdns.	111	103	141	153	102	-
96: Sale of hatching eggs and Poultry from Government Farm	4,384	5,450	3,667	5,298	2,842	2,938
97: Sale of Honey	30	24	38	12	-	-
98: Inspection of Agricultural Produce	790	256	417	1,280	544	563
99: Sale of Wine	223	-	-	-	-	-
101: Service to 3rd Parties	2,481	2,507	2,127	1,661	2,273	1,811
Veterinary Services						
102: Main'ce of dogs kept under observation	131	254	175	315	662	1,247
Miscellaneous Reimbursement						
113: Miscellaneous	698	1,239	1,038	1,256	2,367	1,905
103: Sale of Poultry Vaccine	-	161	221	253	75	-
	28,788	30,710	33,297	34,964	35,281	32,896
XII INTEREST						
4: Interest on Loans	2,770	2,499	3,416	5,113	5,994	6,315
XIII PENSION CONTRIBUTIONS						
1: Contribution under Widows & Orphans	1,218	1,226	1,171	1,155	1,289	890
XVI MISCELLANEOUS RECEIPTS						
2: Miscellaneous	653	23	578	487	3,925	1,139
5: Repayment of Loans	27,373	35,247	34,133	64,698	61,169	58,487
	28,026	35,270	34,711	65,185	65,094	59,626
SUMMARY						
VII: A. FEES OF OFFICE	15,499	15,522	16,668	17,498	18,876	20,658
B. Reimbursement	28,788	30,710	33,297	34,964	35,281	32,896
XII: INTEREST	2,770	2,499	3,416	5,113	5,994	6,315
XIII: WIDOWS & ORPHANS(PENSION ACT 1927)	1,218	1,226	1,171	1,155	1,289	890
XVI: MISCELLANEOUS RECEIPTS	28,026	35,270	34,711	65,185	65,094	59,626
	76,301	85,227	89,269	123,915	126,534	120,385

STAFF AS ON 31ST DECEMBER, 1969

Director of Agriculture and Fisheries	1

Administrative, Executive and Clerical

Senior Administrative Officer	1
~~Registrar of Co-Operatives~~	~~1~~
Administrative Officer	~~5~~
Higher Executive Officer	3
Executive Officer	2
Higher Clerical Officer	10
Clerical Officer	21
Shorthand Typist	2
Clerk/Typist	67
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Technical and Departmental

Principal Government Veterinary Surgeon	1
Principal Technical Officer	2
Senior Agricultural Officer	2
Plant Pathologist	1
Agricultural Chemist	1
Horticulturist	1
Viticulturist and Oenologist	1
Superintendent of Government Farms	1
Chief Fisheries Officer	1
Veterinary Surgeon	2
Superintendent of Public Gardens	1
Vacational Training Officer	1
Junior Agricultural Chemist	1
Agricultural Officer	2
Afforestation Officer	1
Technical Assistants (Fisheries)	2
Agricultural Marketing Officer	1
Senior Fisheries Officer	2
Senior Inspector of Co-Operatives	2
Lands Officer	1
Information Officer	1
Poultryman	1
Store Officer	1
Inspector of Agricultural Produce	2
Agricultural Assistant	4
Fisheries Officer	9
Information Officer	1
Veterinary Assistant	5
Assistant Livestock Officer	1
Senior Weighing Officer	1
Farm Supervisor	1
Head Gardener	7
Weighing Officer	9
Livestock Assistant	1
Store-houseman	3
Senior Butcher	1
Butcher	14
Gardener	1
Stamping Officer	2
Mechanic	2
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Messengerial and Cleaning	
Messenger	3
Fatigueman	10
Charwoman	7
	20
Tradesmen, Labourers and Watchmen	
Temporary Agricultural Inspector	12
Mechanic	1
Fitter	4
Carpenter I	1
Handyman I	1
P.P. Head Operative	2
Miner I	8
Despatch Rider	1
Assistant Head Gardener	7
Laboratory Aggendant	4
Handyman II	4
Station Attendant	2
Stockman	3
Timekeeper	1
Gardener	49
Telephone Attendant	3
Farm Operative I	5
Motor Transport Driver	14
P.P. Operative	5
P.P. Driver	1
Assistant Head Operative	3
Stoker	3
Farm Operative II	14
Skilled Labourer	44
Storeman	1
Stoker	3
Engine Driver II	1
Female Abblution Attendant	1
Caretaker	3
Gatekeeper and Guard	3
Servant	1
Watchman	13
Part-time Watchman	14
Labourer	131
Cartman	1
Apprentices	6
Boy labourer	5
	375
M/V Hannibal crew	
Skipper	1
1st Engine Driver	1
2nd Engine Driver	1
Senior Seaman	1
Seaman	3
	7
Grand Total	608